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NURSE BELIEFS AND OTHER INFLUENCING VARIABLES ON NURSES' INTENTIONS AND DECISIONS REGARDING FAMILY PRESENCE IN ADULT ICUS

by

BEVERLY G. JONES

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

2012

MAJOR: NURSING

Approved by:

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Advisor Date

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DEDICATION

I dedicate this outcome of my efforts to my family. First, I honor through this dedication, the understanding and charity of my children for all the missed events and celebrations over which this work received precedence. Included are Crystal Rene', Anita Antoinette, David Wallace, and Ericka Ann. Because the focus of the work was important to me they made the effort to understand its gestalt and importance to families that are served by nurses. They took the time to regularly inquire whether their assistance was needed and to continually offer words of encouragement.

I also dedicate my dissertation to my twin sister, Barbara and her husband, James. Barbara was patiently available anytime I needed critical feedback, a listening ear or inspiration. My brother-in-law, the renowned family chef, kept me well- nourished and helped when gremlins disrupted the operation of my vehicle or household with clogged pipes, worn-out parts or a sundry of other reasons.

Lastly, I include my siblings and other family members in this dedication. Included are those for whom significant events occurred during the course of this work and I was not able to be present and those who are no longer with us. I feel the support and pride for my work from all of them.

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ACKNOWLEDGEMENTS

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I wish to recognize with great appreciation the assistance received from Desiree Blake and Francene Lundy related to the review and pilot of the research questionnaire. They reviewed the tool, identified potential ICU pilot participants and gained permission from the candidates to volunteer them as pilot participants. I also wish to acknowledge with gratitude the support, confidence in my work and continuing inspiration shared by Dr. Regina Williams, Dr. Margaret Andrews, Dr. Marsha Lesley, and Ms. Rose Luster-Turner. I also thank Christine Rodemeyer for her shared Microsoft Word expertise and assistance with pagination of the dissertation and table of content formatting.

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LIST OF ABBREVIATIONS

AACN	American Association of Critical Care Nurses
AAP	American Academy of Pediatrics
ACEP	American College of Emergency Physicians
AHA	American Heart Association
AICUFPQ	Adult ICU Family Presence Questionnaire
ENA	Emergency Nurses Association
FP	Family Presence
ICU	Intensive Care Unit
PBC	Perceived Behavioral Control
PDMS	Positive Decision Making Scale
PIS	Positive Intent Scale
RIS	Restrictive Intent Scale
TPB	Theory of Planned Behavior
Ave_pct_open	Average Percent Op

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Chapter 1

Introduction and Background

Family presence (FP) generally defined as family and friends being present at the bedside of hospitalized patients, has garnered the attention of the health care industry and consumers. Family presence is supported by the family centered care philosophy that is unfolding in hospitals and is the subject of publicized advocacy from several organizations. The Centers for Medicaid and Medicare have approved new visitor rules, medical and nursing professional organizations have published white papers in support of family presence and much has been published about the needs of patient families (AACN, 1997; AAP and ACEP, 2002; AHA, 2000; ENA, 1994; Federal Register, 2010; Henneman & Cardin, 2002; Nelson & Polst, 2008;). Despite increasing recognition of the benefits and support from a number of professional and patient advocacy groups for allowing family members to be present at the bedside of hospitalized relatives, unrestricted family presence (FP) continues to evoke strong feelings and controversy from many clinicians. Nurses and physicians acknowledge varying levels of awareness related to the importance of FP to families, but continued resistance that is steeped in potent beliefs remains (Duran, Oman, Jordan, Koziel & Szymanski, 2007; Slota, Shearn, Potersnak & Haas, 2003). In contrast, the desire of patients and family to remain together during procedures and intensive care hospitalization has consistently been uncovered by researchers over the past thirty years (Mason, 2003; Mooreland, 2005).

Some nurses believe that detrimental effects from family visitation expose intensive care patients to unnecessary psychological and physical risks. Research,

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however, does not substantiate these beliefs (Basol, Ohman, Simones & Skillings, 2009; Giannini, 2006). In fact, some benefits of FP have been so robust that research findings suggest that restrictive visiting practices may be more detrimental than allowing open visitation (Fumagelli, Boncinelli, LoNostro, Valoti, Baldereschi, Di Bariet, et al., 2006). Yet, this evidence has not been enough to create a tipping point for universal practice change.

Research findings have revealed that patient safety and quality of care increased when family members are allowed to be present at the bedside (Sims & Miracle, 2006; Whitton & Pittiglio, 2011). Findings of high patient and family satisfaction, improved communications between nurses and family members, and reduced patient and family anxiety have inspired some organizations to institute more flexible visiting practices. However, nurse and physician responses related to these types of new programs have been mixed (Basol, Ohman, Simones & Skillings, 2009; Berti, Ferdinande & Moons, 2007; Garrouste – Orgeas, et al., 2008; Mian, Warchal, Whitney, Fitzmaurice & Tancredi, 2007; Walls, 2009). Basol, et al. (2009) reported that sixty-five percent of nurses indicated willingness to support a future policy related to FP during resuscitation compared to only eighteen percent of CRNAs and forty-six percent of physicians. Although, there is only anecdotal evidence theorizing relations between FP and reductions in adverse patient outcomes (such as equipment failures, medication errors and associated lengths of stay), research findings that identify such connections would be compelling evidence for FP (Bracco, Favre, Bissonnette, Wesserfallen, Revelly, Ravussin, et al., 2001; Shelton, Moore, Socaris, Gao & Dowling, 2010).

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Statement of the Problem

Because nurses are pivotal to quality care and are at the center of family care in ICUs, it is imperative to understand how their beliefs and attitudes influence decisions about unrestricted FP. Nurses, most often, are the actual "gatekeepers" who regulate family presence at the bedside (Agard & Lomborg, 2010, pp 1107). Exploring influences experienced by ICU nurses related to decision-making regarding unrestricted FP is important to uncovering knowledge pertinent to behavioral determinants and opportunities for change. Additionally, it is important to examine factors that are perceived as the basis for nurse beliefs, expectations related to FP that come from those who are identified by the nurse as important and to understand perceptions about obstacles that may prevent the performance of the behavioral outcome (Ajzen, 2005).

The potential for discriminatory behavior and/or unconscious racial bias to be committed by ICU nurses provides impetus to explore ethnic demographics related to FP in intensive care units. According to Leske (1992) a variety of family member characteristics can trigger the formation of positive or negative attitudes by nurses. Such attitudes can not only affect relationships, they may also unconsciously affect decisions. The processes of nursing care require nurses to make decisions and unfortunately, the decisions are sometimes not made with the values, beliefs and preferences of patients/families, first in mind. When making decisions regarding who should or should not visit ICU patients, nurse respondents from the Agard and Lomborg study (2010) described how their own values and goals were sometimes used as a standard measure. Determining when or for which visitors to use the standard measure, nurses reported that such decisions were based on personal instinct.

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Implying that this strategy was necessary and right to employ, the nurses acknowledged that their own priorities and values may have differed from the families for whom the strategy was implemented. Employing one's own values while making decisions on behalf of another may not intend bias but in fact, may result in just that, unintended bias. Therefore, examination of nurse beliefs, as well as social and personal variables may uncover information regarding the impact of influences on FP care decisions and held knowledge which can ultimately be used to target practice improvements.

Only a limited number of research studies have been conducted related to FP in adult ICUs (Holden, Harrison & Johnson, 2002). In contrast, an abundance of studies have been conducted regarding family presence during resuscitation (Halm, 2005; Howlett, Alexander & Tscuhiya, 2010; Moreland, 2005; Sanford, Pugh & Warren, 2002; Walker, 2007). Thus, important gaps related to FP in adult ICUs remain. None of the studies conducted related to resuscitation and the limited number focused on adult ICUs have identified significant behavioral determinants or predictors among nurse beliefs and attitudes. None of the published studies identified significant normative influences, facilitators, or obstacles related to nurse behaviors and family presence in adult ICUs (Berti, Ferdinande & Moons, 2007; Duran, Oman, Jordan, Koziel & Szymanski, 2009; Garrouste-Orgeas, et al, 2008; Kirchhoff, Pugh, Calame & Reynolds, 1993; Marco, et al., 2006).

In addition to empirical gaps in the published literature on FP, there are also methodological shortcomings. Much of the previous research on FP has been conducted with small numbers of nurse participants often from a variety of hospital units/departments as opposed to only ICUs (Agard & Maindal, 2009; Bassler, 1999;

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Boyd & White, 2000; Meyers, Eichhorn, Guzzetta, Clark, Klein, Taliaferro & Calvin, 2000; Tomlinson, Golden, Mallory & Comer, 2010). Studies identifying larger samples have often included health personnel in addition to nurses (physicians, pharmacists, respiratory therapists, etc.) and reported findings based on aggregated respondents (Ellison, 2003; Helmer, Smith, Dort, Shapiro & Katan, 2000; Macy, Lampe, O'Neil, Swor, Zalenski & Compton, 2006; McClenathan, Torrington & Uyehara, 2002). Although findings from these studies have provided some information regarding how one professional discipline's attitudes compare to another and documented evidence of the continuing FP controversy, little of the information has advanced nursing knowledge about FP and associated nurse behaviors.

This study was designed to address the existing gaps in the literature through investigation of the impact of nurse beliefs and other influencing variables on FP decisions made by nurses working in adult ICUs. The study examined the influence of FP nurse beliefs on the relations between social, personal and situational factors and nurse decisions regarding family presence in adult ICUs.

Specific aims and hypotheses of the study were:

Specific Aim #1: Identify the relation of nurse social variables on nurse-reported intentions and
decisions regarding FP in adult ICUs.

H1a: Older nurses are more positive toward unrestricted FP than younger nurses.

H1b: Male nurses are more positive toward unrestricted FP than female nurses.

H1c: African American and Hispanic nurses are more positive toward unrestricted FP than non-African American or non-Hispanic nurses.

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H1d: Nurses with higher levels of education are more positive toward unrestricted FP than less educationally prepared nurses.

H1e: Critical care certified nurses are more positive towards unrestricted FP than non-critical care certified nurses.

Specific Aim #2: Identify the mediating influence of nurse behavioral beliefs on the relation between social variables and nurse-reported intentions and decisions regarding FP in adult ICUs.

H2a: The nurse belief score will partially mediate the relation between age and nurse-reported intentions and decisions regarding FP.

H2b: The nurse belief score will partially mediate the relation between minority nurses and nurse-reported intentions and decisions regarding FP

H2c: The nurse belief score will partially mediate the relation between gender and nurse-reported intentions and decisions regarding FP.

H2d: The nurse belief score will fully mediate the relation between education and nurse-reported intentions and decisions regarding FP.

H2e: The nurse belief score will partially mediate the relation between certification and nurse-reported intentions and decisions regarding FP.

Specific Aim #3: Identify the relation of nurse personal variables on nurse-reported intentions
and decisions regarding FP in adult ICUs.

H3a: Past experiences as an ICU patient or family member will be positively associated with nurse-reported intentions and decisions regarding FP.

H3b: Increased knowledge and skills regarding care of patient families will be positively associated with nurse-reported intentions and decisions regarding FP.

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Specific Aims #4: Identify the mediating influence of nurse behavioral beliefs on the relation between personal variables and nurse-reported intentions and decisions regarding FP in adult ICUs.

H4a: The nurse belief score will fully mediate the relation between past experiences and nurse-reported intentions and decisions regarding FP.

H4b: The nurse belief score will partially mediate the relation between knowledge and nurse-reported intentions and decisions regarding FP.

Specific Aim #5: Identify the relation of nurse situation variables on nurse-reported intentions and decisions regarding FP in adult ICUs.

H5a: Nurse perceptions of reduced medication errors will be positively associated with nurse-reported intentions and decisions regarding FP .

H5b: Nurse perceptions of family helping patients to understand medical information will be positively associated with nurse-reported intentions and decisions regarding FP.

H5c: Nurse perceptions of patient recovery and healing will be positively associated with nurse-reported intentions and decisions regarding FP.

H5d: Nurse perceptions of decreased family anxiety will be positively associated with nurse-reported intentions and decisions regarding FP.

H5e: Nurse perceptions of insufficient unit space to accommodate visitors will be negatively associated with nurse-reported intentions and decisions regarding FP.

H5f: Nurse perceptions of family satisfaction will be positively associated with nurse-reported intentions and decisions regarding FP.

H5g: Nurse perceptions of increased nurse time required with families due to FP will be negatively associated with nurse-reported intentions and decisions regarding FP.

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Nursing Significance

The health and well- being of those who receive health services are major health care, nursing, and consumer-held values. Therefore, the impact that fear, worry and other psychological discomforts can cause to patient outcomes due to intensive care admissions is of major concern to hospitals in general and nurses in particular (McKinley, Nagy, Stein-Parbury, Bramwell & Hudson, 2002). Studies conducted by Hupcey (2000) and other researchers found that an overwhelming desire of ICU patients is to feel safe. Feeling safe was described as being significantly influenced by the presence of family (Hupcey & Zimmerman, 2000; Russell, 1999). Meeting this important patient desire heightens the importance of the FP research and underscores why nursing has a significant role related to it.

The risk to the health and welfare of patients and their publicized interest in FP obligates the leadership and involvement of nursing. Nursing's relevance is defined by the interests/needs of society and its members (ANA, 2003). An overarching goal of nursing is the health and well-being of individuals. Fundamental to operationalizing this goal is the improvement of the experience of care for individuals and working to meet the challenge of improving the health of populations. Improving patient experiences through attention to FP offers the chance to do what is intended in nursing, to bring scholarship, knowledge and practice together. Nursing's interest in the best available evidence is at the center of the synergistic relationships between scholarship, knowledge and practice. Nursing research is the process by which much of the needed evidence can be acquired. Nursing has evolved to value the principle that ideas and practices thought to improve the health and well-being of those served, should be what

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nursing pursues. This study identified findings that promise improved quality of patient care, patient and family ICU experiences, cost of care reductions and, nurse experiences related to FP. Additionally, analysis of underlying beliefs and attitudes of nurse decisions related to unrestricted FP in adult ICUs may support development of strategies that can sustain positive FP practice changes.

Background

Measures of control related to hospital visiting practices have existed since the beginning of the first American hospital and clinicians are hesitant to give up this type of control. Many nurses have expressed that they know best when it comes to visiting privileges for patients and that deciding on optimal visiting schedules is a matter of control that is best in the hands of the nurses (Ramsey, Cathelyn, Gugliotta & Glynn, 2000). Research findings indicate that nurses use control of family visiting preferences to meet what they perceive as patient needs as well as, nurse preferences (Agard & Lomborg, 2010; Hupcey, 1999; Marco, et al., 2006). Controlling family visiting is perceived by many nurses as behavior that contributes to quality patient care. However, given the benefits associated with FP, restricting family visiting may place the nurse's intended goal of quality care at risk.

Quality of Care, an important associated benefit of family presence, has been defined by several entities (Council of IOM, 1994; IOM, 2001; WHO, 2006). However, FP fulfills well the definition/description provided by Berwick (2009) based on the context of quality of care during hospitalization. Berwick posits that quality is determined by a recipient's needs, preferences, and the appropriate timeliness of a delivered service. Family presence is a practice that can greatly assist in the

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operationalization of Berwick's definition of quality care. It is a patient and family desired practice that can comfort families during a difficult time, provide an additional patient safety screen, and initiate positive relationship-building between caregivers and families (Basol, Ohman, Simones & Skillings, 2009; Farrell, Joseph & Schwartz-Barcott, 2005; Gonzalez, Carroll, Elliot, Fitzgerald & Vallent, 2004; Plowright, 1998).

Importantly, family and health are connected in ways that are not always visible, readily knowable, or easily described. Family health is an integrated system comprised of both illness and health within which family members influence various aspects of each other's lives through life style, health promoting behaviors and support given ill members. Who comprises "family" should be determined by the patient and his/her "family". Family is a personal and cultural conceptualization and as such should not be defined by outsiders (Berwick & Kotagal, 2004; Ziegert, 2011).

Advances in medical science have resulted in healthcare progress and improved hospital environments. Intensive care units are now places of complex technological quaternary and tertiary care. Medical and nursing innovations along with patient response to treatment are remarkably improved, however, in the midst of such progress the ICU experience continues to be anxiety-producing and overwhelming for patients. In addition to the emotional upheaval for patients, ICU admission generally indicates a level of actual or potential physiological crisis and hemodynamic instability. For family members, the combination of psychological and physiological effects related to the unexpected admission, uncertain outcomes, and the possibility of the patient's death are aspects of the ICU experience that trigger feelings of crisis (Jamerson, Scheibmeir, Bott, Crighton, Hinton & Cobb, 1996; Williams, 2005). This level of stress can have an

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impact on the patient and family's ability to synthesize complex information, weigh important options, and make needed treatment decisions expeditiously.

The potential impact of such stress on patient care quality, length of stay and cost of care, is significant (So & Chan, 2004). The unrelenting sensory stimuli from large numbers of personnel caring for patients and equipment noises can intensify what may already be a heightened sense of family unease and patient anxiety. The noisy, sometimes frenetic intensive care environment has historically been associated with patient and staff stresses (Lee, Friedenberg, Mukpo, Conray, Palmisciano & Levy, 2007). There is no disagreement among clinicians that anxiety and disorientation are experienced by patients and family members during ICU admission and hospitalization. Additionally, there is recognition that the high pressured intensive care environment can also be tension filled for nurses (Duran, Oman, Jordan, Koziel & Szymanski, 2007; Ellison, 2003; Knott & Kee, 2005). Yet, the level of understanding by nurses regarding the impact of these experiences on patient response to treatment and healing is variable. Some nurses believe that patient ICU admission experiences are disquieting while other nurses do not. Not only are there mixed perspectives among nurses, research has identified differences among family and nurses regarding the level of importance ascribed to various admission processes (Hupcey, 1999; Duran, Oman, Abel, Koziel & Szymanski, 2007).

Theoretical Framework

The Theory of Planned Behavior (TPB) guided this study. The TPB is based on the fundamental perspective that intention, the antecedent determinant of behavior, is reached through a systematic approach that explains and predicts attitude and

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behavior. Behavior is guided by three categories of beliefs, behavioral, normative and control beliefs that are the foundation of the theory's major constructs. Behavioral beliefs, once formed, serve as the basis for favorable or unfavorable *attitudes* toward behavior. Normative beliefs stimulate convictions about perceived pressures from important others (that are referred to as *subjective norms*) related to performance of behavior. For example, ICU nurses may believe that their decisions related to open FP must conform to the preferences of the unit nurse manager and/or important unit nurse peers or physicians. Control beliefs are the basis for *perceived behavioral control* factors that impede or facilitate performance of behavior. An example of a potential control belief is whether nurses believe that they are gatekeepers who possess full control of FP decisions.

The behavioral determinants (attitudes, subjective norms and perceived behavioral control) work together to form intention. Each determinant can be moderated by social, personal and situational factors. See Theory Substruction Figure 1and Concept Map Figure 2. This explanatory process is not designed to evaluate the veracity of the beliefs. Instead it establishes the foundation from which the beliefs, attitudes and behavior are derived (whether the beliefs are inaccurate, biased or irrational) (Ajzen & Fishbein, 2005).

The TPB guides exploration and prediction of attitudes and associated behaviors. The theory (TPB) evolved from the earlier developed, Theory of Reasoned Action (TRA), in which one's attitude related to intention and subjective norms are major theory constructs. The TPB broadened the application range of the TRA through the addition of the perceived behavioral control (PBC) construct. The PBC construct comprises

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volitional control, self-efficacy, facilitators and obstacles related to executing the specified behavior. Thus, the TPB is comprised of three major determinant constructs; attitudes, subjective norms and perceived behavioral control. Within the TPB model, PBC predicts behavioral intentions and moderates the intention-behavior relationship. The explanatory properties of the TPB are the reasons that the TPB was selected to guide this research. These properties promised better understanding of nurse behaviors related to ICU family presence through the examination of self-reported knowledge, attitudes, and beliefs (Ajzen, 2005; Ajzen & Madden, 1986; Fishbein & Ajzen, 1975).

Knowledge

Structuring a reasoned approach to behavior, the TPB processes involve evaluation and use of information related to the targeted behavior. The systematic process is actualized through the use of relevant knowledge which is one of the background factors. Background factors are considered foundational elements of beliefs (Ajzen, 1991). Within the TPB major determinants of behavior are understood in the context of beliefs which can influence or be influenced by a multitude of background factors. Knowledge and skill are personal variables in this study that pertain to self-reported ICU nurses ability related to care of families when they are experiencing emotional reactions to changes in the condition of their loved one (ICU patient). Insufficient knowledge and skill have been identified by nurses as variables of concern that can affect nurse attitudes and decision-making related to FP in ICUs (Farrell, Joseph & Schwartz-Barcott, 2005; Slota, 2003).

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Attitudes

Within the TPB attitudes are favorable or unfavorable evaluations of behavior and develop as beliefs about behavior are formed. Beliefs that shape attitudes are personally held convictions regarding the probability that a specified act will produce a given outcome, such as those held by ICU nurses regarding unrestricted family presence. Beliefs connect behavior to attributes that are a function of the evaluations about the attributes. For example, unfavorable nurse attitudes regarding FP in the ICU might be based on beliefs such as: FP causes increased patient infections, stress for patients and family members, and/or disruption to needed patient rest and the work flow of nurses. Likewise favorable attitudes of nurses might be based on beliefs such as FP improves patient and family satisfaction and is believed to be helpful to nurses and other staff (Berti, Ferdinande & Moon, 2007; Duran, Oman, Jordan, Koziel & Szymanski, 2007).

Individuals generally adopt favorable attitudes toward behaviors associated with positive attributes or good feelings and unfavorable attitudes towards behaviors that are associated with bad attributes. Therefore, to change the attitudes of ICU nurses, it is necessary to understand influential beliefs which are the basis of the targeted attitudes. Nurses, like most individuals, possess multiple behavioral beliefs about a given behavior. However, only a small number of their beliefs remain salient over time. Long-standing institutional beliefs such as those related to church, democracy, race, etc. tend toward stability over time. However, beliefs and attitudes about individual persons or behavioral consequences can change with time. Beliefs in combination with evaluations of expected outcomes (of a given behavior) determine the attitude toward the behavior.

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The TPB posits that evaluation of each outcome contributes to the attitude of the individual in proportion to the individual's perception that the behavior will produce the anticipated outcome. In other words, beliefs about behavioral consequences weighted by the importance given the consequences, shape attitudes (Ajzen & Fishbein, 2008; Cohen, Fishbein & Ahtola, 1972; Terry & Hogg, 1996).

Beliefs

Beliefs include those that emanate from the expectations that others who are important to a given individual have about a behavior, as well as from beliefs gained when one's ability to execute a behavior is either facilitated or impeded. Such beliefs are termed normative beliefs and perceived behavioral control, respectively (Ajzen, 2005). Normative beliefs are the perceived likelihood that selective referent individuals would approve or disapprove of performance of a given behavior. Knowledge among nurses about the performance of each other is a value long held by most nurses and is believed to influence the individual performance of some nurses (Kramer, et al., 2007; Plowright, 1998). In this regard, the influence of ICU nurse managers, physicians and/or ICU nurse peers is hypothesized in this study to be related to nurses' decisions regarding unrestrictive FP in the adult ICU. Consistent with the TPB, the influence of others who are important to nurses can have a direct effect on the intentions of nurses related to unrestricted FP in the ICU. The nurse's beliefs about the pressure/influence of others are prioritized for consideration based on how motivated the nurse is to comply with the pressure/influence. The strength of such beliefs contributes directly or indirectly to the prediction of intention and behavior (Ajzen, 2005).

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Beliefs range from those that are descriptive, gathered through a person's senses to those that are inferred about non-observed events. Descriptive beliefs are typically generated by contact that aroused one's senses and inferential beliefs arise from one's thoughts or experiences communicated by others. Despite the range of opportunities to generate and/or acquire personally validated beliefs, most beliefs held by individuals about a focal behavior come from second-hand sources such as, teachers, friends, relatives, co-workers, newspapers, books, magazines, radio or television. Beliefs can be influenced by social, situational, and individual variables including demographic characteristics and one's knowledge about a given behavior. However, determinations about the influence of specific beliefs and background variables on one's behavior are empirical questions that must be answered by research. In the current study the impact of social (age, ethnicity, gender, seniority and education), personal (knowledge and personal FP experiences) and, situational variables (medication errors, unit activities, benefits, facilitators and obstacles) were examined (Ajzen & Fishbein, 2005).

Perceived Behavioral Control

The third major behavioral determinant construct, perceived behavioral control (PBC), was added to the TPB to address the issues of personal control, obstacles, and/or facilitators related to the achievement of behavioral outcomes. The earlier work of Ajzen (1977), Ajzen & Fishbein (1980) and other researchers (Liska, 1974; Schuman & Johnson, 1976) revealed that individuals did not always do what they intended to do. In view of these findings, the researchers hypothesized that the lack of sufficient resources or volitional control could cause individuals to behave differently than

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intended. The development of the notion of perceived behavioral control was intended to respond to this type of situation. PBC refers to beliefs held about the extent to which one has the ability to exercise control over specified resources and/or one's perception of having the authority to perform the behavior in question. Self-control over one's behavior is the central focus of PBC and the absence of such control has been shown to interfere with behavioral outcomes. However, it is not the amount of perceived control that is of concern within the TPB but, rather, the effect of the control on achievement of the behavior. PBC indirectly impacts intention and when consistent with reality can be used as a direct predictor of behavior (Ajzen, 2002).

It was hypothesized within the current study that perceived behavioral control beliefs (about such factors as sufficient physical space, time to communicate with family members, perceptions regarding which individuals are considered good or bad visitors, etc.) will support or impede unrestricted FP in adult ICUs. The beliefs are perceived influential based on the nurse's perceptions regarding the power of the factor to support or impede FP. Because the PBC concept has strong associations to one's intentions, personal deficiencies in terms of skills, ability, knowledge or other external obstacles can interfere with attainment of a given behavior. Interference based on such characteristics can occur even in the presence of favorable attitudes, support, and approval from those who are important to the individual performing the behavior.

Intention

Intention is the action-oriented component of attitudes and is antecedent to behavior within the TPB. As previously identified, the three constructs of attitudes, subjective norms, and PBC are determinants of intention and functions of beliefs.

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Research findings have demonstrated that a broad range of behaviors, attitudes and PBC correlate with intentions better than subjective norms (Armitage & Conner, 2001). The relative criticalness of any one of the three constructs to the intended behavior is dependent on the focal behavior under investigation. Intention has been identified as the most important determinant of behavior. However, for some behaviors, attitudinal considerations are primary while for others, normative or perceived behavioral control may predominate. While the current research was designed to reveal determinant nurse beliefs, outcomes also have uncovered attitudinal linkages. In some circumstances, such as in the current research, only one or two of the determinants are necessary to explain the behavior while for others, all three may be required (Ajzen, 2005).

Conceptual and Operational Definitions

Attitude toward behavior
Favorable or unfavorable nurse dispositions acquired from evaluation results of information
and/or experiences related to the consequences of open FP in adult ICUs.

Behavioral beliefs
Subjective acceptance of presumed consequences or benefits related to open FP
in adult ICUs that underlie associated attitudes.

Behavior
Nurse execution of FP decisions to permit or associated with permitting open FP in
adult ICUs.

Control Beliefs
ICU nurse beliefs regarding perceived factors that will facilitate or impede Nurse intention to
execute FP decisions to permit open FP in adult ICUs.

Family
Adult relatives or friends of hospitalized adult intensive care patients.

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Family Presence (FP)

The act of being present at the bedside of hospitalized adult intensive care patients.

Intention

Nurse plan to execute decisions related to permitting or denying FP in adult intensive care units.

Normative Beliefs

Perceived convictions about FP performance expectations from individuals (manager, medical director, best collegial friend) who are designated (by the ICU nurse) as important to the ICU nurse.

Perceived Behavioral Control

ICU nurse perceived impediments or facilitators related to FP in adult ICUs.

Subjective Norms

ICU nurse perceived pressures from important others related to nurse's execution of behaviors related to FP in the adult ICUs.

Open/unrestricted FP

FP without limitation regarding time of day, patient condition, patient care service, length of visitation or visitor relationship to patient unless requested by the ICU patient or designated patient advocate.

The underpinning focal point of the theory of planned behavior is that intention is the immediate antecedent of behavior and is determined by attitude toward the behavior, subjective norms, and perceived behavioral control factors. As depicted in Figure 2 (TPB Concept Map of FP in Adult ICU), behavioral, normative and control beliefs stimulate attitudes, subjective norms and perceived control, all of which can vary based on the influences of background variables. Each construct within the TPB

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framework has importance in that each sequential step uncovers more understanding of the behavioral determinants and behavior.

The following concept-map (Figure 2), based on the TPB (Ajzen, 1991), guided the conceptualization of the research aims and hypotheses. The theoretical substruction (Figure 1) brought clarity to the overall research process through the congruent schematic illustration of the theoretical and operational components.

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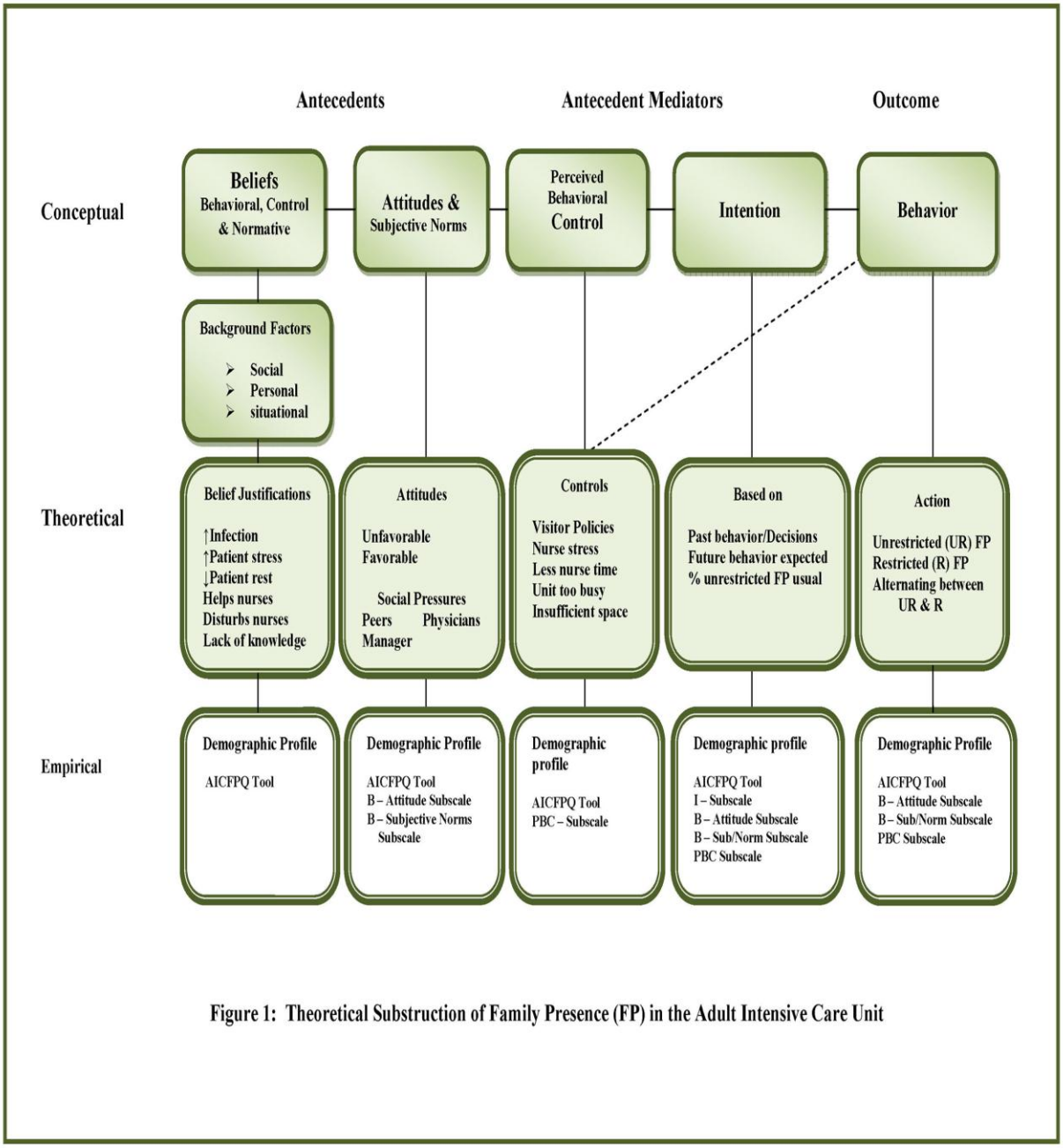

Figure 1: Theoretical Substruction of Family Presence (FP) in the Adult Intensive Care Unit

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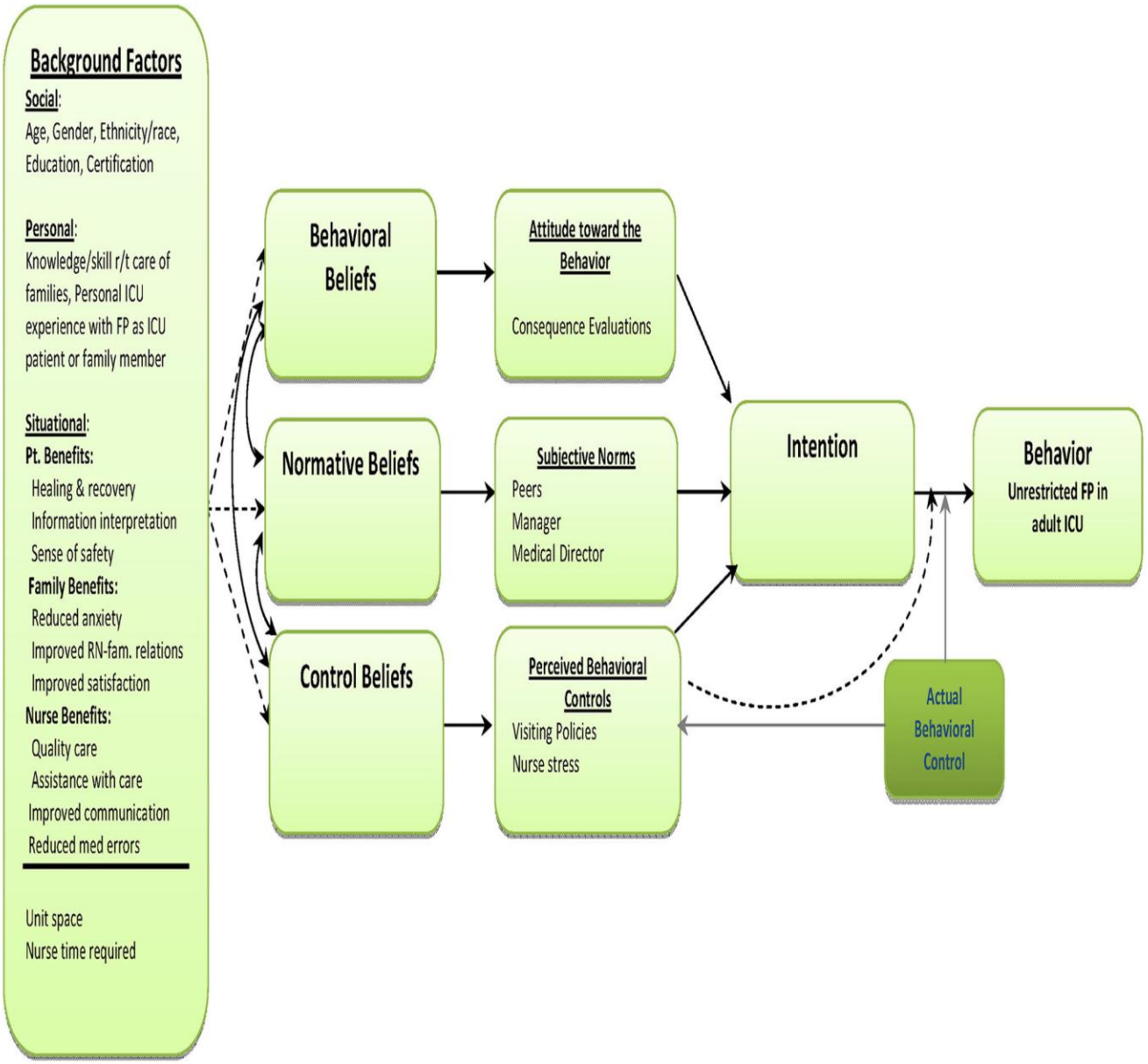

Figure 2. Theory of Planned Behavior Concept Map of Family Presence in Adult ICU

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Chapter 2

Review of Literature

This chapter presents four sections that are comprises a comprehensive overview of the theory and empirical research relevant to the current study. The first section of this review includes discussion of the historical and current state of the science related to FP and empirical gaps in knowledge. Older studies have been sparingly included when appropriate. Given that literature related to FP in adult ICUs is limited, the review includes studies of FP during adult resuscitation. The resuscitation focused studies were used to support potential relations among selected variables within the current study, stimulate expanded exploration and to present what is known about FP. However, because unrestricted FP is an accepted practice in many intensive care units when patients are actively dying or are children, the review does not include literature related to end-of-life care, pediatric or perinatal ICUs. Utilizing a cross-sectional research design the present study examined the impact of beliefs and other influencing variables on family presence (FP) decisions made by nurses working in adult intensive care units (ICUs).

The second section of the literature review provides discussion of the TPB background factors; social, personal and situational. Refer to Figure 2. The review includes literature pertaining to selected variables of each factor. Included are the:

social variables of age, gender, ethnicity/race, education and certification;

personal variables of nurse perceptions about his/her experience as an ICU patient and/or family member and nurse perceptions

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about knowledge/skill pertaining to the care of ICU families;

situational variables of nurse perceptions about patient benefit of recovery and healing and family interpretation of medical information to patients, family benefit of reduced anxiety and improved family satisfaction, nurse benefit of improved family communication, medication errors and quality of care.

Within the TPB, background factors can potentially influence an individual's beliefs and attitudes; however, whether such influence actually occurs or does not occur is an empirical question (Ajzen, 2005; Ajzen & Fishbein, 2005). The categories of background factors within the proposed research are each comprised of investigator- selected variables that have been hypothesized as pertinent to FP in adult ICUs.

The third and final section will present discussion of literature related to the underlying major determinant variables of the TPB; behavioral, normative, and control beliefs. The review includes literature pertaining to how the TPB's reasoned approach to behavior guides the identification of behavioral determinants. Each of the three major determinants is a function of underlying beliefs that are influenced by background variables. Research that explores the TPB processes and background factors is essential to uncovering insight related to behavior (Ajzen, 2005). Findings from such research could help guide targeted interventions to produce behavior changes related to FP in the future.

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State of the Science

Obstetrical, neonatal and pediatric nursing units have long permitted FP, and patient services other than intensive care are slowly beginning to experiment with FP (Evans, 2008). For some hospitals the family-centered philosophy of care has provided the framework for transforming services and experimenting with FP. Family-centered care started in the early 1960s as a part of the consumer oriented movements (Johnson, 2000). Primary among the core concepts of the family-centered approach is honoring patient and family perspectives and choices. Patients and families are urged and supported to become partners in their care at the level they choose. Research suggest that some hospitals utilizing the family-centered care approach experience notably improved outcomes related to patient safety and increased patient and staff satisfaction (www.ipfcc.org, Boudreaux, Francis & Loyacano, 2002; Brumbaugh & Sodomka, 2009).

Resuscitation

From the time in the 1980s that Foote Hospital shocked the healthcare community by permitting families to be present during resuscitation, published literature related to FP during resuscitation has proliferated (Halm, 2005; Hanson & Strawser, 1992; Howlett, Alexander & Tsuchiya, 2010; Mooreland, 2005). Findings from these studies along with mushrooming research focused on the needs and experiences of ICU patient families, have uncovered increasing interest of family members to be present during resuscitation and other invasive procedures. Consumers and professionals alike have publically acknowledged that patients and relatives do not want to be separated and moreover, should not be separated during emergency and/or

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invasive procedures (NBC Dateline Poll, 1999; USA Today Poll, 2000). Somehow, despite such evidence of interest, restricted hospital visiting practices persist.

Restricted access to ICUs is an international visiting practice. In fact, some European hospitals prohibit ICU family access (Giannini, Miccineski & Leoncino, 2008) of any kind. As recent as 2006, one European hospital increased visitor restrictions including a reduction in overall visiting hours and the number of visitors allowed at the patient's bedside. Children were totally banned with privileges extended only in extenuating circumstances. The hospital stated that the changes were made to help reduce infection rates within the hospital. However, it was reported that no evidence existed or was presented to support the changes (Plowright, 2007). In contrast, U.S. hospitals do allow family access however it is common practice for families to alternate stints of waiting room vigilance with short bedside visits. Such restricted practices are disturbing to families and not reflective of how important it is to them to be together during illness. Being together is one way that support for family is manifested within family systems. Denying this form of support is disruptive to families at a time when closeness has been shown to be therapeutic for both patients and family members (Williams, 2005).

Since the seminal study (Hanson & Strawser, 1992) conducted at Foote Hospital, prevailing views about excluding family members during resuscitation of their loved ones has shifted. Major medical and nursing associations have endorsed family presence and additional studies have revealed positive findings and mounting support for FP (AACN, 1997; ACCM, 2007; AHA, 2000; Cleveland, 1994; ENA, 1994; Griffin, 2003; Gurley, 1995; Halm & Titler, 1990; Hamner, 1994; Heater, 1985; King, 2001;

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Lewandowski, 1994; Poole, 1992; Sims & Miracle, 2006; Simon, Phillips, Badalamenti, Ohlert & Krumberger, 1997). These data also indicate that patients have little input into the ICU visiting policies and practices that affect them, particularly if they have an interest in increasing visitors and/or extending available visiting times. Patients are generally permitted the authority to be more restrictive than hospital policy relative to visitors, however, based on this author's professional experience; they are not permitted to expand visiting parameters beyond official hospital policy for anyone. The decisions of who can visit the patient, how long, and when visits may occur at the unit level are within the primary purview of the nurses. When allowed to be present during times other than those designated by hospital policy, family members are rarely permitted access by nurses without some form of restriction.

While fewer professional organizations have endorsed FP during resuscitation in Europe, leadership and advocacy for FP has been demonstrated by nurses and physicians representing cardiology, critical care, and pediatrics. The overarching aims related to FP of both the U.S. and European organizations appear to be the provision of support for families and interest in awakening clinician awareness through the accessibility of evidenced based guidelines, policies and practices (Baskett, Steen & Bossaert, 2005; Moons & Norekval, 2008).

Even though FP during resuscitation continues to engender mixed and inconsistent findings related to clinician attitudes, FP during resuscitation appears to be evolving and is being accepted by more clinicians. Macy, Lampe, O'Neil, Swor, Zalenski and Compton (2006) compared emergency department personnel perceptions and support regarding FP during resuscitation among four (two urban and 2 suburban)

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metropolitan Detroit hospitals. Sixty percent (60%) of the 236 convenience sample participants consisted of physicians, nurses, and physician assistants with the other 40% of respondents comprised primarily of security, pastoral care, social workers, technicians, and pharmacy personnel. While over half of the clinicians indicated it was appropriate for family members to be present during resuscitation, those from the urban settings were less likely to support the practice. A small study (convenience sample of 79) of emergency room physicians, nurses and PAs was conducted by Tomilinson, Golden, Mallory and Comer (2010) found that FP during resuscitation for children (81% of the time) was practiced more than for adults (74% of the time). While most (82%) of the respondents supported FP during resuscitation fewer had actually been a part of a family witnessed resuscitation event. Clinicians who were not supportive cited concerns related to clinician stress as the primary reason for their reluctance.

Nevertheless, reported positive benefits, increasing public awareness, and the focus of hospitals on family centered approaches to care have likely propelled consumer interest beyond presence only during resuscitation to interest related to presence during other significant health care experiences. Family presence during resuscitation has been viewed as beneficial to both the patient and family. Participants have reported improved relationships and communication between clinicians and families, decreased fear and anxiety for families and patients and, an improved grieving process for those who have lost love ones during resuscitation (Ellison, 2003; Mian, Warchal, Whitney, Fitmaurice & Tancredi, 2007). Studies have also been conducted based on implementation of FP in operating rooms during breast surgery, invasive

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procedures in radiology departments and postanesthesia care units with reported findings in support for the practice (Evans, 2008; Walls, 2009; White, 2006).

The preponderance of research findings related to FP during resuscitation supports family presence and provides evidence of patient and family outcomes that can be gained from on-going implementation and extending the practice to other hospital areas/services. The ever-present interest to enhance hospital experiences for families provides further support for family presence during resuscitation and other hospital services. The on-going evidence related to mixed feelings and/or lack of support for family presence from clinicians underscores the need to examine in more depth the beliefs and attitudes that support such feelings. Research of this nature can provide data that will inform design, implementation, and maintenance strategies related to nursing practice.

Unrestricted Family Presence

Restricted family presence in hospitals and ICUs is the practice in many parts of the world. Studies of French, Belgian, Italian, and British ICUs were conducted and findings indicated restricted visiting practices in each country (Giannini, Miccinesi & Leoncino, 2008; Hunter, Goddard, Rothwell, Ketharaju & Cooper, 2010; Quinio, Savry, Deghelt, Guilloux, Catineau & Tinteniac, 2002; Vandijck, Labeau, Geerinckx, Puydt, Bolders, Claes & Blot, 2010). Visiting was restricted across each of the countries with restrictions including time, frequency, and length of visits as well as number and type of visitors. While most of the ICUs modify practices if the patient is dying or is a child, some do not.

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Kirchhoff (2006) conducted an AACN sponsored study to identify benchmarks that would facilitate objective comparison among U.S. hospitals. The national study of 120 (18.2%) out of 658 eligible hospitals reported data on critical care units which included a range of ICUs, recovery rooms, step-down, telemetry, intermediate and progressive care units. Only 14 out of 118 adult intensive care units reported unrestricted visiting practices signaling continuing reluctance related to FP. Yet, this finding is a notable change from a much earlier study conducted (1982) by Kirchhoff in which, no ICUs reported unrestricted visiting. Other earlier studies (Stockdale & Hughes, 1988; Whitis, 1994) reported similar findings related to visiting practices. The Stockdale study examined perceptions of a convenience sample of 240 nurses who reported that the majority of patient care units on which the nurses worked set restrictions on the number of visits, length of time per visit, number of visitors, and the minimum age of visitors. Whitis (1994) examined ICU, recovery room, adult and pediatric general care unit visiting policies of 125 randomly selected hospitals in the southeastern states and found restrictions consistent with the Kirchhoff and Stockdale and Hughes studies. The findings from 50(40%) hospitals revealed that while visiting for pediatric patients was more liberal than what was permitted for adults, all patient care units enforced some kind of restriction. The majority of hospitals reported that pediatric visitors other than parents were allowed to visit only during general visiting hours. Intensive care visiting was more limited for both adults and pediatric patients with the most frequent span reported as 5-10 minutes every hour. The majority of hospitals did not allow family members into the recovery room.

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A large study (Lee, et al. 2007) of the visiting practices of 195 adult non-cardiac and pediatric ICUs in 171 hospitals was conducted in New England area hospitals. Results of this study, the largest conducted in the current decade, provides little evidence of substantive change compared to previously reported research findings. Only thirty-two percent of the ICUs had open visiting which meant that almost 70% of the remaining units continued to execute visiting restrictions. Even among the ICUs that reported use of open visiting, 23 (37%) enforced age restrictions and 40 (65%) had restrictions on the number of visitors permitted with 31 (78%) allowing a maximum of only two visitors at any given time. Among the hospitals reporting open ICU visitation less than half (34%) were teaching hospitals. One hundred and fourteen (58%) ICUs had an age restriction and 166 (85%) had restrictions of the number of visitors permitted to be present simultaneously at the bedside.

Gaps related to this body of research included the absence of evidence regarding associated institutional and unit organizational cultures, values, philosophy and visions; systematic data regarding exceptions to unit visiting policies and data regarding the existence of professional practice models and/or family-centered care frameworks. Hospitals and nursing departments that reinforce professional practice provide a culture that puts the family first. Professional practice models support staff understanding that families of patients are not an interruption to the nurse's work but rather, are the nurses' work.

Methodologically the research designs of the studies were well selected and methods were aligned with research questions/purposes and statistical tests used in the analyses. Researchers, with the exception of Lee, et al., (2007), Giannini, Miccinesi

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and Leoncino, (2008), Hunter, et al., (2010), Quinio, et al., (2002) and Stockdale and Hughes (1988), reported that content validity and reliability of measurement tools were acceptable. While there likely is data, there was no methodological information reported in the Lee, et al regional study. Additional concern is the fact that the principal investigator, Dr. Lee (a physician) served as the moderator for all six nurse participant focus groups used in this study to gather data. There was an attempt to respond to potential bias issues by appointing a consistent observer for all groups and tape recording the sessions. However, the observer was also a physician and the principal investigator transcribed the tapes. There was no indication that the content analysis and interpretation were confirmed in any way with the focus group participants. There was also no reliability and validity information reported for the Stockdale study. The Kirchhoff, (2006) and Whitis (1994) studies contained no reports of statistical tests to determine adequate sample sizes and the Kirchhoff hospital response rate of 18.2% was very low.

Historical Research Evolution

An earlier body of work exploring the physiological impact of presence related to patient outcomes was completed by several researchers. Lynch and McCarthy (1967) in an experimental study were able to suppress the conditional responses of tachycardia and foot flexion in a dog following a tone shock in the presence of a person and changed the direction of the response in the presence of a person petting the dog. These findings along with other similar research outcomes were instrumental in initiating the trajectory for subsequent research related to patients and presence. Lynch, Flaherty, Emrich, Mills and Katcher (1974) and, Thomas, Lynch and Mills (1975) found

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that the heart rates of comatose patients decreased when they were touched and verbally comforted and increased when touching and verbal comforting ceased.

Findings from studies by two nurse researchers, McCorkle (1974) and Brown (1976) differed from Lynch and McCarthy results. McCorkle conducted an experimental study examining the effect of touch and verbal interaction on heart rates and body movements of ICU patients. Brown, using a descriptive design, looked at the impact of 10 minutes every hour family visits on blood pressures and heart rates of CCU patients. The McCorkle findings demonstrated no significant results in the cardiac rate, rhythm or behavioral responses while Brown's findings verified that blood pressures and heart rates decreased in all patients following the family visits but remained at higher rates than before the visits. Neither finding was consistent with the Lynch results or supportive of less restrictive family visiting practices. Unfortunately, the Brown findings were used to support the implementation of an even more restrictive family visit policy in the coronary care ICU of the participant hospital.

Several additional researchers used non-experimental research designs (Bay, Kupferschmidt, Opperwall & Speer, 1988; Fuller & Foster, 1982; Lazure, 1997; Poole, 1993; Prins, 1989; Simpson & Shaver, 1990, 1991; Tuller, et al. 1997; Vogelsang, 1988) to examine the effects of visiting related to mental health status, blood pressure, heart rate, stress arousal, and anxiety changes in ICU and post anesthesia care unit (PACU) patients. Study results were consistent with the Lynch findings, demonstrating neither hemodynamic nor mental status changes during family visits.

Notably, the Fuller and Foster (1982) and Simpson and Shaver (1990, 1991) findings determined that visits were no more stressful than routine nurse-patient

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interactions and the Bay group findings identified that the mental status of younger patients actually improved following family visits. These study outcomes invalidate nurse expressed needs to enforce visiting restrictions to avoid negative impact to the hemodynamic or neurological functioning of patients.

Overall these studies are substantial and at their origin were groundbreaking. There are a total of 13 studies involving physiologic response in humans and all but two (Lazure, 1997; McCorkle, 1974) used non-randomized samples which limited the generalizability of results. All of the studies had small sample sizes and did not report information regarding analyses to evaluate required effect sizes. The small sample size may have negatively impacted outcome effect. In addition, selecting all participants from one diagnostic population or the same location could limit the generalizability of the outcomes. The most significant methodological weakness is the lack of detail regarding reliability and validity of tools, procedures, training and descriptions of data collectors.

More recent studies (Fumagelli, et al., 2006; Simpson & Shaver, 1990; 1991) of physiologic research not only supported earlier findings, results have advanced the previous efforts by demonstrating benefits that invalidated erroneous beliefs related to patient safety risks and disruption to the work of clinicians. For example findings from the randomized trial conducted by Fumagelli were so positive that the research team indicated that they believed continuing the present day restrictive visiting practices would actually be more detrimental to patient outcomes. The study compared increased environmental contamination, cardiovascular, emotional, and hormonal profile changes between an open patient visitation group (OPVG) and restrictive patient visitation group (RPVG) in an ICU. From a total of 381 screened patients who were

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admitted to a six bed cardiology ICU over a 24 month period, 226 patients were enrolled and randomized to one of the two groups. Findings revealed similar outcomes for both groups even though patient safety risks were greater for the open patient visitation experimental group. Surfaces in open visitation patient rooms were significantly more contaminated with bacteria than found in restrictive patient visitation rooms, yet cumulative incidence of infections, generalized sepsis and overall septic complications in both experimental patient groups were similar. All major cardiovascular complications were incurred more frequently by patients in the restrictive category compared to those in the open visitation category with statistical significance reported for pulmonary edema and shock. Anxiety scores were similar at baseline in the 2 groups and significantly reduced in the open visitation group from admission to discharge with only a slight non-significant reduction observed in the restrictive visitation group. Depression scores were comparable for both groups between admission and discharge. Unfortunately, the positive findings from this body of research including results from the clinical trial have not been enough to trigger change.

Background Factors

Exploration of the influence of background factors related to nurse intention and decision making regarding FP in adult ICUs can provide improved insight regarding nurse behaviors, opportunities for practice changes and identification of important social indicators. Beliefs are acquired as individuals interact and/or experience their daily worlds. Because experiences differ based on personal characteristics and exposure to various sources of information, persons from different backgrounds and varying experiences can form different world views and beliefs. They may also share some of

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the same beliefs while simultaneously differing on others. According to Fishbein and Ajzen (2010) the association of a given background factor to the performance of a behavior is predicated on the extent to which the factor is related to any of the behavioral determinant beliefs. To determine this kind of influence requires empirical investigation. Therefore, this study explored the influence of social, personal and situational variables related to nurse intention and decisions regarding FP decisions in adult ICUs. The social factors that were analyzed in the study were age, gender, race/ethnicity, education and critical care specialty certification. Personal factors analyzed were knowledge and skill related to the care of families and past experience as an ICU patient and/or family member of an ICU patient. Analyzed situational factors included select FP benefits to patients (healing and recovery, medical information interpretation, feeling safe), family (reduced anxiety, improved nurse-family relations, satisfaction), and nurses (quality of care, improved communication, and reduced medication errors).

Social Factors

Social factors: Age

There are no theoretical findings or anecdotal evidence that has identified a relationship between age and ICU nurse intentions and decisions regarding FP decisions. Findings from eighteen FP studies that reported demographic descriptions of age did not clarify the relation between age and perceptions pertaining to FP.

The Twibell, et al. (2008) study explored age among a range of demographic variables and other research aims related to FP and found no significant relation between RN and LPN nurse (n=375) age and FP perceptions. Similar findings were

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also reported from a study conducted by Marco, et al. (2006). The descriptive correlational study involved 46 nurses from a 16-bed medical-surgical ICU and included analysis of the relationship between nurse beliefs and attitudes regarding open visitation. There were no statistically significant associations found between the socio-demographic variables, including age. The Basol, Ohman, Simones & Skillings (2009) study was conducted to identify attitudes, concerns and beliefs of 625 hospital healthcare personnel (78% were nurses) related to FP during resuscitation and bedside invasive procedures. Correlations were found between the demographic variables of age, highest degree obtained, national certification, gender, code blue team member, critical care nurses versus non critical care nurses and RNs versus non-RNs with attitudes and beliefs toward family presence. Correlations between demographic variables and select FP beliefs were statistically significant. Age was significantly correlated with only one of the FP support assessment items, “I feel comfortable providing psychosocial/emotional support to family members during treatment”. The older the health care worker the more comfort experienced when providing psychosocial/emotional support to family members during treatment situations. The mean age reported was 43 years old with a range of 23 to 81 years.

Ghiyasvandian, Abbaszadeh, Ghojazadeh and Sheikhalipour (2009) conducted a small study of 14 nurses in a six bed Iranian ICU to examine the effect of open visiting on the beliefs of the nurses. Findings revealed negative correlation between age and FP. There was an inverse relationship between age and beliefs. The younger the nurse the more positive he/she perceived the effect of open ICU visiting to be. The

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average age of nurses who participated in the study was 29.64 years old with a range of 29 to 39 years.

Other FP during resuscitation studies reported no demographic data at all or reported age information only to describe the samples. The absence of analyses related to age in the reviewed studies supports the significance of exploring the influence and associations related to age in this dissertation research (Badir & Sepit, 2005; Berti, Ferdinande & Moons, 2007; Duran, Oman, Jordan, Koziel & Szymanski, 2007; Garrouste0Orgeas, et al., 2008; Helmer, Smith, Dort, Shapiro & Katan, 2000; Macy, Lampe, O'Neil, Swor, Zalenski & Compton, 2006; McClenathan, Torrington & Uyehara, 2005; Meyers, Eichhorn, Guzzetta, Clark, Jorie, Taliaferro, et al., 2000).

Overall reviewed research findings related to associations between age and unrestricted FP were sparse. What has been reported seemed to suggest that older nurses are working in ICUs and tend to have longer tenure as critical care nurses. This study credibly addresses age and adds to existing knowledge, providing more insight about age and FP perceptions in adult ICUs.

Social Factor: Gender

Although there was an absence of empirical and anecdotal literature regarding the impact of nurse gender on nursing care delivery and decisions, an exploratory hypothesis was investigated; ICU male nurses would express more positive decisions regarding FP. This hypothesis was based on presumed differences related to how some ICU male and female nurses conduct work processes and are known to respond to stress. Many ICU nurses (principally female) have reported that FP caused increased stress and was disruptive to their work (Agard & Maindal, 2009; Badir & Sepit, 2007;

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Duran, Oman, Jordan, Koziel & Szymanski, 2007; Fullbrook, Albarran, & Latour; Helmer, 2000). A more positive response toward FP by male ICU nurses than female nurses is in part based on research findings that have identified the tendency of male nurses to choose to work in ICUs and other highly technical areas.

According to researchers and others (Armstrong, 2002; Egeland & Brown, 1989; Evans, 2002; 2004) work selections such as those made by males have not been merely happenstance decisions. The roles of men in nursing are a confluence of social and political forces. Nursing, long thought of as "women's work," effectively discouraged for some time the entry of males into the profession. However, once the barrier to entry was broken, the historical perspective about nursing being women's work influenced the position/career choices of males. Male nurses needed to select positions that upheld their perceived views of masculinity. Egeland and Brown's study of 367 male nurses identified seven areas of nursing that met the masculinity criteria: "administration, emergency services, anesthesia, ICU/CCU, OR, psychiatry and industrial nursing" (p. 705). For male nurses the technical skills and level-headiness associated with these areas of work represent congruence with the level of masculinity related to roles that they are seeking. This level of masculinity set them apart from their feminine colleagues (Dassen, Nijhuis & Philipsen, 1990). It was reported (Evans, 1997) that male nurses purposefully distanced themselves from the behaviors and collegiality of their female counterparts.

In general although unrelated to FP in ICUs, there is evidence that men and women (in general) identify and respond differently to stressful situations. Research conducted by Eaton and Bradley (2008) examined gender differences in response to

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exposure to standardized sets of four written scenarios depicting friend, managerial, exam, and relationship conflict. A sample of 216 undergraduate psychology students, 121 females and 95 males, participated in the study. Consistent with other (Tamres, Janucki & Helgeson, 2002) research outcomes, results supported the study hypothesis that identified that females would evaluate the scenarios as being more stressful than males. Despite the lack of precise connection of this study to FP the gender related finding supports the plausibility of the gender hypothesis in the dissertation research.

Lastly, a review of eighteen other FP studies revealed that gender was only reported as a demographic descriptive variable. None of these studies explored gender as a predictor variable in relation to any of the study outcomes. This might have been due to the small number of male nurses included in the samples and/or the lack of a sufficient number of studies. Three of the studies reported no gender results; two of the three did not mention the demographic at all (Marco, et al., 2006; Berti, Ferdinande & Moons, 2007) and one (Twibell, et al., 2008) indicated that the numbers were too low to report.

Social Factor: Ethnicity/Race

Despite increasing attention over the last two decades, racial and ethnic health and treatment inequalities remain a disturbing conundrum for the American health care industry (Smedley, Stith, & Nelson, 2003; Dovidio, Penner, Albrecht, Norton, Gaertner & Shelton, 2008). Research findings have documented worse health outcomes for individuals from underrepresented groups compared to whites. The differences persist with comparable severity of illnesses, whether or not individuals have health insurance and spans all age and income ranges (Smedley, et al., 2003).

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The abundance of research pertaining to acute and chronic conditions demonstrating health and medical care disparities includes limited studies of care provided in the ICUs (Muni, Engelberg, Treece, Dotolo & Curtis, 2011). Unfortunately, most of what is known about disparities during critical illness is primarily focused on end-of-life care. Findings from these studies are not as straightforward as other studies. Some researchers (Borum, Lynn & Zhong, 2000; Rapopart, Teres, Steingrub, Higgins, McGee & Lemeshow, 2000; Schulman, Berlin, Harless & Kemer, 1999) have found lower intensity of services used for black patients while other researchers report higher utilization of resources for black patients when responding to critical care needs (Barnato, Berhane, Weissfield, Chang, Linde-Zwirble & Angus, 2006; Diringer, Edwards, Venkatesh & Hollingsworth, 2001). Borum and associates found that after controlling for severity of illness and other sociodemographic factors, black patients received fewer services in the ICU with no adverse effects to survival rates. Similarly, the Schulman and Rapoport research teams found that black patients were less likely than whites to be referred for cardiac catheterization and pulmonary artery catheter use. In contrast, the Barnato and Diringer teams found higher ICU utilization of hospital days during terminal care and use of more life sustaining treatments for blacks and other individuals of underrepresented groups.

Continuing and in some cases, “widening” (Clarke, Davis & Nailon, 2007, p740) and more devastating outcomes (Williams, 2005) of health disparities for members of underrepresented groups and in particular, Black Americans, has driven attention to uncharted territory. Researchers (Clarke, Davis & Nailon, 2007; Dovidio, Penner, Albrecht, Norton, Gaertner & Shelton, 2008; Malat, Hitt, Burgess, F-Sanchez & Van

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Ryan, 2010; Van Ryan & Fu, 2003) are beginning to explore nurse and physician perceptions regarding the potentiality of unintentional racial/ethnic biases, caregiver processes, interactions and decisions that may energize disparate outcomes. Dovidio, Penner, Albrecht, Norton, Gaertner & Shelton (2008) posit that the psychology of contemporary racial bias is intertwined with health care encounters and may afford new directions for tackling health disparities.

The Dovidio team argued that a new contemporary form of racism, "aversive racism" (p 479) occurs at a subtle unconscious level of cognition and has replaced the more traditional overt forms of bias. Individuals who fit into this category subscribe to explicitly embraced egalitarian principles and attitudes. In addition, aversive racists also unknowingly hold unrecognized negative racial attitudes that are unconsciously activated and applied in subtle indirect ways that do not threaten their personal egalitarian image. Dovidio makes the point that while activation of stereotypes in and of themselves may not lead to discrimination, negative attitudes and stereotypes do position individuals for biases. Further, such proclivities are likely activated when individuals experience pressures caused by insufficient time and or increased demands.

Because insufficient time and increased demands are a central part of the reported work experiences of ICU nurses on a routine basis exploring the impact of ethnicity in the proposed study is pertinent. Other researchers, (Clarke, Davis & Nailon, 2007; Malat, Hitt, Burgess, F-Sanchez & Van Ryan, 2010; Van Ryan & Fu, 2003) have identified the importance of exploring clinical care and interaction processes in an effort to better understand if and how such processes influence racial disparities, whether intended or unintended. The observation that while some physician decision making

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processes related to care choices for black patients have been analyzed and no such investigations have been conducted related to nurse driven functions or decisions, further supports analysis of race and ethnicity in this study.

The same eighteen studies (as reviewed related to gender) were reviewed to assess race and ethnicity analysis gaps of previously conducted FP research. Three of the studies acknowledged the need for such analyses but none of the three reported race/ethnicity results. One of the studies (Twibell, et al, 2008) eliminated analysis of the ethnicity data because of the small number of nonwhite participants (1 African American, 3 Asian Pacific and 5 other ethnic individuals) compared to 352 white participants. The Macy, el al. (2006) study discussed earlier in this chapter reported that race and ethnicity had not influenced support of FP responses. The study included non-nurses (physicians, nurses, physician assistants, pharmacists, social workers, chaplains, security and other personnel) and comments related to the ethnicity analyses are inclusive of all participants. Ten of the studies did not report any race or ethnicity data in their descriptive findings related to respondents (Badir & Sepit, 2005; Berti, Ferdinande & Moons, 2007; Fallis, McClement & Pereira, 2008; Fulbrook, Albarran & Latour, 2005; Garrouste – Orgeas, et al., 2008; Ghiyasvandian, Abbaszadeh, Ghojazadeh & Sheikhalipour, 2009; Helmer, Smith, Dort, Shapiro & Katan, 2000; MacLean, et al., 2003; Marco, et al., 2006; Tomilinson, Golden, Mallory & Comer, 2010). The remaining five studies reported demographic descriptive information regarding race and ethnicity of nurses but no analyses of the outcomes broken out by different ethnic/racial groups. (Basol, Ohman, Simones & Skillings, 2009; Duran, et al., 2007; Ellison, 2005; Mangurten, et al., 2005; Meyers, et al., 2005).

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Social Factor: Education

The education hypothesis that nurses with higher levels of education would be more positive toward unrestricted FP than less educationally prepared nurses was driven by various research and theoretical literature. Despite the level of awareness and action ignited by the IOM National Roundtable on Health Care Quality, quality of care, including care in ICUs, remains an issue of immense concern relative to health care in the United States (Chassin & Galvin, 1998; Garland, 2005; Lasser, Himmelstein & Woolhandler, 2006; Nolte & Mckee, 2008;). Benefits and outcomes perceived by family and patients related to FP are aligned with the indicators for quality improvement in ICUs. Family satisfaction, reduction of adverse medical events, and improved relations between providers and family members are the FP outcomes that have also been identified as improvements that can enhance patient and family ICU experiences. The linkage of nurse education to improved patient quality and patient safety has been evidenced and extending the linkage of improved quality and patient safety to FP is a logical connection.

When recruiting new nurses, length of experience has historically been perceived as a valuable attribute. However, conventional wisdom regarding the superiority of experience over nursing education has begun to be questioned. Studies demonstrating positive influence related to education and patient outcomes are challenging managerial attitudes regarding nurse experience compared to nurse education.

Aiken, Clarke, Cheung, Sloane & Silber (2003) and K-Gallagher, Aiken, Sloane & Cimiotti (2011) found that a 10% increase in the proportion of nurses with higher

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degrees decreased the risk of mortality and failure to rescue by 5% and 6%, respectively. Two additional studies, Van den Heede, et al. (2009) and Tourangeau, et al. (2006) found a significant association between baccalaureate prepared nurses and lower in-patient mortality when controlling for patient characteristics and procedure volume.

Even though research findings related to nurse education has and continues to establish a supportive trend, there are also contradictory findings. Blegen, Vaughn and Goode (2001) completed a secondary analysis (staffing and quality of care) to investigate associations between education, quality of care and nurse experience. Units with more experienced nurses did have lower medication errors and fall rates but units with more baccalaureate prepared nurses were no better. Such outcome variability supported the exploration of the education hypothesis tested in this research. Bassler, (1999), studied whether 46 ICU and emergency care nurse beliefs regarding the presence of family members in the resuscitation room would change after an educational intervention. While pre and post survey results were significantly different there were no significant correlations between what nurses thought they should do and their nursing education degree either before or after the class. On pretest 5 (11%) nurses reported giving families a choice to be present in the resuscitation room compared to 43 (79%) nurses on post-test (McNemar test of significance =.000) who reported that they planned to give families a choice.

Growing consensus has been established regarding the need to increase the numbers of nurses who attain baccalaureate nursing degrees compared to those who finish with associate degrees or diplomas in nursing (American Association of Colleges

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of Nursing, 2011). Professional nursing policymakers and practice leaders have published recognition on behalf of the organizations they represent, regarding the influence of education on nursing practice and the need for more nurses educated at a minimum of the BSN level. The IOM released a landmark report recommending an increase to 80% in the proportion of baccalaureate prepared nurses (Institute of Medicine, 2010). The Tri-Council for Nursing (American Association for Critical Care Nursing, American Nurses Association, American Organization of Nurse Executives, and Nursing League for Nursing) issued a recommendation for the advancement of nurse education in the interest of improved quality and patient safety (Tri-Council for Nursing, 2010). Based on the body of research supporting the relation between nursing education and improved patient care, the Council on Physician and Nurse Supply also issued a report calling for an expansion of baccalaureate nursing programs (Council on Physician and Nurse Supply, 2008).

Three of eighteen reviewed studies identified information regarding relations between education level and FP variables. Findings from the Basol, Ohman, Simones and Skillings (2009) study identified that education significantly correlated with FP beliefs. Findings revealed statistical significance between the highest educational level and select items related to psychosocial emotional support to family members. Education was significantly correlated with 3 items indicating that participants with the highest levels of education were more positive about FP during invasive procedures and resuscitation. Nurses reported beliefs that family members should have the option of being present during resuscitation and invasive procedures in addition to perceptions of being well informed about the impact of family presence during invasive and

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resuscitation procedures. Findings related to certification (discussed later in this section) were significant however, education had the stronger association. Even though the sample included participants from professions other than nursing, nurses represented 78% of the respondents (n=490) and as such, were responsible for a major portion of the study's statistical outcomes.

Two (Fallis, McClement &Pereira, 2008; Mangurten, Scott, Guzzetta, Sperry, Vinson, Hicks, Watts & Scott, 2005) FP studies reported highest degree obtained but no accompanying analyses and the remaining thirteen studies reported no education or certification data (Badir & Sepit, 2005; Berti, Ferdinande & Moons, 2007; Duran, Oman, Abel, Koziel & Szymanski, 2007; Fulbrook, Albarran & Latour, 2005; G-Orgeas, et al, 2008; Ghiyasvandian, et al., 2009; Helmer, Smith, Dort, Shapiro & Katan, 2000; MacLean, et al., 2003; Macy, Lampe, O'Neil, Swor, Zalenski & Compton, 2006; Marco, et al., 2006; McClenathan, Torrington & Uyehara, 2002; Meyers, Eichorn, Guzzetta, Clark, Klein, Taliaferro & Calvin, 2000; Tomilinson, Golden, Mallory & Comer, 2010). On the other hand, Twibell, et al. (2008) investigated perceptions of nurses' self-confidence related to the risk and benefits of FP, and found that nurse FP perceptions did not differ whether the nurse held an associate or baccalaureate degree.

Social Factor: Certification

The certification hypothesis, the same as that of education, was also driven by various research and theoretical literature. The hypothesis, critical care certified nurses are more positive towards unrestricted FP than non-critical care certified nurses, has been linked with quality of care and patient safety. Certification and quality of care and patient safety are positively linked in many publications (American Association of

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Crititcal-Care Nurses and AACN Certification Corporation, 2003; Kaplow, 2011; Niebuhr & Biel, 2007; Shirey, 2005; Teal, 2011; Wade, 2009; Wilkerson, 2011) yet empirical results are mixed. Kendall-Gallagher and Blegen (2009) found that the proportion of certified nurses on the unit was inversely related to frequency of patient falls and urinary tract infections, positively associated with blood stream infections and not related to rates of medication errors, decubitus ulcers, or central catheter infections. In another study (Dunton, Gajewski, Klaus & Pierson, 2007) of NDNQI participating hospitals, the ICUs had the lowest rates of falls however no association was found between rates of falls and percentage of certified nurses.

Kendall-Gallagher, Aiken, Sloane and Cimiotti (2011) found an associated 2% decrease in the odds of patients dying with every 10% increase in the percentage of specialty certified nurses in hospitals. Similarly although not statistically significant, Newhouse, Johantgen, Pronovost & Johnson (2005) reported that estimated odds of complications or patient death decreased by 8% per 10% increase in the proportion of certified nurses. Nelson, Powell-Cope, Palacios, Luther, Black, Hillman, et al., (2007) reported a 6% decrease in length of stay with every percent increase in the proportion of certified nurses.

Krapohl, Manojlovich, Redman & Zhang (2010) completed a secondary analysis of previously conducted research (relation between nurse perceptions of nurse-physician communication, practice environment and the proportion of certified nurses on a unit) of 25 adult ICUs from 8 metropolitan Detroit hospitals. The analysis was conducted to determine the relation between the proportion of certified nurses and rate of adverse outcomes from 3 nurse sensitive outcomes (central line infection, pneumonia

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and decubitus ulcers). Findings revealed no statistically significant relationship between the proportion of certified nurses and the nurse sensitive outcomes.

Basol, Ohman, Simones & Skillings (2009) found that certification was significantly correlated with FP beliefs. Findings revealed statistical significance between certification and select survey items related to the psychosocial emotional support provided to family members. Certification was significantly correlated with 4 survey items: certified participants believed that family members should have the option of being present during resuscitation and/or invasive procedures, providing emotional support to families was believed to be part of the nurse's job and nurses believed themselves to be well informed about the impact of family presence during invasive and resuscitation procedures. Even though the sample included participants from professions other than nursing, nurses represented 78% (n=490) of the respondents, comprising a major portion of the study's statistical outcomes.

Ellison's (2003) study of 193(99%) RNs and 15 (1%) LPNs conducted to explore the influence of variables related to nurse attitudes and beliefs about FP during resuscitation or invasive procedures found significant relations between attitude toward FP and educational preparation and specialty certification. While the randomly selected sample included hospital nurses from all nursing units in one hospital and members of the New Jersey Emergency Nurse Association (ENA), certified emergency nurses had more positive attitudes towards FP. Fifty three percent (53%) of the ENA nurses were certified compared to .03% of the sampled hospital nurses. Using linear regression the Ellison team uncovered that education, specialty certification, nurse designation (LPN versus RN) and specialty department where nurses worked were statistically significant

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predictors of FP attitudes. Twibell, et al. (2008) found that certified nurse respondents perceived greater self-confidence than non-certified nurses.

Even though research findings related to nurse certification continue to establish a supportive trend, contradictory findings indicate that more research is needed. This variability advanced the researcher's plan to explore the impact of certification related to FP research. Benefits such as improved family satisfaction, improved healing and recovery, reduced family anxiety, and reduced medication errors have also been identified as factors that can enhance patient and family ICU experiences. The linkage of critical care certification to improved patient quality and safety has been evidenced in some studies so extending the linkage to FP is a logical connection that may result in improved patient and family ICU experiences.

The current research speculated that nurses who were certified and academically prepared at the bachelor's degree in nursing or higher level behaved more positively towards FP. This is predicated on the changing landscape of relations between clinical decision-making, patient outcomes, and education.

The importance of the aforementioned social factors is pivotal to the current research for reasons pertinent to each of the factors. Age, gender, ethnicity/race, education and certification are fundamental groups to which individuals can belong and whose effects intertwine with each developmental phase and socialization of their lives. Therefore, membership in such groups can have profound influence on one's beliefs, attitudes and behavior, underscoring the relevance of the study as planned.

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Personal Factors

Personal Factor: Knowledge

Nurse interest in relevant knowledge has been evident since the time of Florence Nightingale's first documented epidemiological recordings. This interest has persisted over time. Over twenty years ago Hickey and Lewandowski (1988) found that more than one-third of ICU nurse respondents did not believe that they had the requisite knowledge to meet the psychosocial and emotional needs of families of critical care patients. There are those who posit that the same knowledge needs continue to exist (Chelsa, 1996; Plowright, 2007; Redley & Hood, 1996) however, findings from one recent study (Marco, Bermejillo, Garayalde, Sarrate, Margall & Asian, 2006) identified that the majority (93.5% n=46) of nurses felt qualified to interact with family during open FP. Concerns of nurses regarding lack of sufficient knowledge and skill needed to address emotional reactions of ICU patient families, sparse evidence of nurses who feel qualified regarding family interactions as well as, the current burgeoning foci related to evidence-based nursing practice are illustrative of the on-going professional nursing interest in knowledge.

As presented previously in this dissertation part of the TPB's reasoned approach involves the use of relevant knowledge related to the targeted behavior. Knowledge is a fundamental element of beliefs which also impacts other major determinants (Ajzen, 1991). Attitude-relevant information is readily retrievable from memory, can enable biased or objective processing of new or existent information, and can be acquired through a variety of sources including the media, personal experience, interaction and observation (Biek, Wood,& Chaiken, 1996).

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Although acquired accurate knowledge can contribute to strong attitudes and enhance the ability of many individuals to understand related information, whether it encourages them to act is an empirical question (Ajzen, 2005; Wood, Rhodes & Biek, 1995). The dissociations between high levels of knowledge and low behavioral response rates for preventive health issues such as AIDS and safer sex practices, breast cancer and breast self-examinations, colorectal cancer and recommended screenings, provides support that research is needed to better understand associations between knowledge and decisions/behavior.

Ajzen, Joyce, Sheikh and Cote (2011) recently published an article based on results from four earlier studies (in one article) on knowledge and behavior. One study focused on environment knowledge and energy conservation, the second was about alcohol knowledge and drinking behavior, and the last two were about knowledge of Islam and Muslim behaviors. Each set of participants completed a knowledge test and related attitude scales to assess level of knowledge accuracy held and its relation to attitudes. Findings revealed that positive or negative behavioral responses by participants were determined by subjectively held information. The beliefs regarding the behavior were linked to the participant's attitude about the behavior and/or expectations of someone or a group important to them and/or to a factor that facilitated or inhibited performance of the behavior. The researchers also suggested that more emphasis should be given to the specificity of the information held by individuals and how it affects intention and behavioral actions. Consistent with the aforementioned points, the current research focuses on nurse perceptions of their knowledge and skills related to care of families and specific beliefs that nurses may hold regarding unrestricted FP.

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Results of studies related to the implementation of redesigned of new visiting policies illustrate the importance of understanding behavioral responses. Pre and posttest research designs have been the design of choice for some FP studies conducted to evaluate outcomes following the implementation of more (compared to previous policies) flexible visiting policies in hospitals (Basol, Ohman, Simones & Skillings, 2009; Holzhauser & Finucane, 2007; Kinsala, 1999; Mian, Warchal, Whitney, Fitzmaurice & Tancredi, 2007; Ramsey, Cathelyn, Gugliotta & Glenn, 1999; Roland, Russell, Richard & Sullivan, 2001). Two of the hospitals only had follow-up data. Nevertheless results, while promising, were somewhat mixed. All of the hospitals followed the performance improvement process format which included the delivery of information related to the pending change. Two of the hospitals conducted formal educational classes to provide information regarding planned changes. One of the hospitals repeated the same classes several times over a three week period of time and the other repeated the same classes several times over a six month timeframe. Implementation units included three emergency departments, three intensive care units in one hospital and one ICU each in the remaining 2 hospitals. There was moderate overall support for the new policies, particularly for the globally focused survey items related to patients and visitors (eg. patient rights, family rights, satisfaction). Posttest responses related to items that probed individual perspectives (eg. staff member beliefs, satisfaction, distress) of nurses and physicians were less positive or indicated no change compared to pretest results. In one hospital the greatest change (statistically significant) of pretest scores compared to posttest scores pertained to the amount of visiting time. Nurses reported a need for more time to complete nursing care activities

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and visitors reported a desire for more time to be with relatives. Because hospitals used measurement tools unique to their individual institutions and aggregated data for some survey items, it was difficult to compare outcomes from one hospital to another. Small sample sizes and aggregated results that included several categories of personnel also hindered analysis.

Personal: Past Experience:

Past behavior has been identified within the TPB as a reliable predictor of later action (Ajzen & Fishbein, 2005). Despite reports of statistically significant findings related to the past behavior variable and its status as the best predictor of future behavior, it has been reported to be meaningless (Quelette & Wood, 1998; Bamberg, Ajzen & Schmidt, 2003). Past experience has been described as simply divulging boring behavioral repetition. Allegations about the lack of meaningfulness has caused past behavior to be excluded from much of the previously conducted research related to predicting future responses. However, the usefulness of the role of past behavior as a research variable has been reconsidered and is now being posited as a one of the major predictors of the theory (Ajzen, 2002a). Findings from several studies have revealed significant impact of past behavior on intentions and future behavior (Mason & White, 2008; Smith, Terry, Manstead, Louis, Kottermn & Wolfs, 2008). Despite the unresolved debate regarding whether previous and subsequent repeated behavior is habitual and the more likelihood of the effect of past behavior on intentions and future behavior in the presence of previous habitual behavior, research has continued to identify positive effect of past behavior on intentions and future behavior (Ajzen, 2002b; Ajzen, 2011; Kor & Mullan, 2011; Norman & Cooper, 2011).

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Findings from only three studies related to FP revealed prior personal experiences by the nurse participants (Chesla, 1996; Farrell, 2005; McClement, Fallis & Pereira, 2009). In the interpretive phenomenologic study conducted by Chesla many of the 130 nurses described how their own experiences with relatives or as patients had served as turning points for their behavior and feelings about FP. Two (n=8) of the participants in the Farrell study also described personal events that initiated changes in their perspectives related to FP. The past behavior variable was added to the current study because there are undoubtedly more nurses who share experiences such as these. Equally important is the impact past behavior is thought to have on the other TPB determinants (attitudes, subjective norms, and intention). Gaining better knowledge regarding nurse behaviors and the meaning nurses give to the behaviors may allow some beliefs to be challenged and practice to be improved.

Situational Factors

Situational Factor: Benefits

Several categories of benefits related to FP have been presented and discussed in the literature. The benefits associated with FP are intertwined with components of quality of care that have been described by several entities as necessary for health (Chassin, Galvin & National Roundtable on Health Care Quality, 1998; Committee on Quality of Health Care in America, 2000; McGlynn, , et al., 2003; Naylor, 2003). They not only involve factors that have been positively related to the health and well-being of patients, quality of care, satisfying hospital experiences for family members and nurses (Duran, Oman, Jordan, Koziel & Szymanski, 2007; Farrell, Joseph & Schwartz-Barcott, 2005); they have also been empirically linked with effective work environments for

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nurses (Fasolino & Snyder, 2012; Manojlovich & DeCicco, 2007; Rathert & May, 2007; Schmalenberg & Kramer, 2008; Stone, Mooney-Kane, Larson, Horan, Glance, Zwanziger & Andrew, 2007). Because FP is a controversial nurse managed measure that is inconsistently practiced and in need of change, the aforementioned linkages are pivotal.

Hofmann and Mark (2006) measured unit safety climates (measured by nurse back injuries, needle-sticks, urinary infections, medication errors, patient satisfaction, perceived nurse responsiveness and nurse job satisfaction) of 81 nursing units that represented 1,127 nurse participants (precise number undocumented) in 42 randomly selected hospitals. Findings revealed that more positive safety climates were significantly associated with fewer patient/nurse incidents, patient and nurse satisfaction and nurse responsiveness (needle-sticks were not significantly associated to climate). The overall safety climate of the units significantly predicted nurse back injuries, medication errors, and urinary tract infections.

Rathert and May (2007) examined associations of perceptions from 307 staff nurses about patient safety and nurse satisfaction related to the patient-centered care (PCC) framework. Results identified that nurses who perceived their units to be more patient-centered were significantly more satisfied with their jobs. Patient centered-care was negatively associated at a significant level to perceived medication errors and medication errors were believed to have occurred significantly less often. The connection of these outcomes to FP is based on the current implementation of PCC in hospitals and the fact that flexible patient visitation by families is a significant cornerstone of the PCC framework.

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Two other studies (Cho, Ketefian, Barkaukas & Smith, 2003; Stone, Mooney-Kane, Larson, Horan, Glance, Zwanziger, et al., 2007) provided similar contributions to the body of knowledge regarding connections between patient outcomes and work conditions. A wide range of administrative processes including staffing, overtime, LOS, workload and patient outcomes (medication errors, decubitus ulcers, and post-op complications) were measured. Stone, et al., (2007) found that patients who were admitted to ICUs deemed by nurses to have positive organizational climates, had higher odds of developing a central line bloodstream infection (CLBSI) but were less likely to develop a catheter-associated urinary tract infection (CAUTI). Patients admitted to ICUs with more RN hours per patient per day had significantly lower incidence of CLBSI, ventilator-associated pneumonia (VAP), 30 day mortality, and decubiti. In units where nurses worked less overtime less CLBSI developed while more overtime increased the odds of acquiring CAUTI and higher rates of decubiti. Similarly Cho, Ketefian, Barkauskas and Smith (2003) reported mixed results. An unexpected finding was the positive relationship between all nurse hours and decubitus ulcers. However increased proportions of RNs and RN hours had a significant inverse relationship with pneumonia. Despite mixed results findings from the two studies are overall supportive of the connection between positive patient outcomes and nurse work environmental characteristics. The studies support exploring associations related to the FP benefits identified in this study for patients, family members and nurses. Understanding the hypothesized linkages can provide important knowledge and support targeted FP practice improvement strategies that may assist to sustain improvements over time.

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Patient Benefits

Despite reports from nurse respondents of several studies (Berti, Ferdinande & Moons, 2007; Farrell, Joseph & Schwartz-Barcott, 2005; Marco, Bermejillo, Garayalde, Sarrate, Margall & Asian, 2006) that open visitation interfered with nursing care processes, caused nurses to spend increased amounts of time providing information to families or that families were no help to care givers, some of the study respondents also identified positive patient benefits. Positive benefits included that the presence of family minimized patient boredom, was a source of emotional support to patients, and increased the patient's will to live (Hupcey, 2000) as well as provided valuable information about patients to caregivers (Bergbom & Askwall, 2000). While reporting the same findings as identified by Berti, Ferdinande and Moons, Farrell, Joseph and Schwartz-Barcott, Marco, et al., Gurley (1995) added that open FP increased the number of individuals in already crowded areas, necessitated increased nurse vigilance to assure that the privacy of other patients was not compromised and interfered with restricted visiting practices which support a more efficient cost effective approach to visiting. On more of a positive note, Gurley and others reported that open FP reinforced a sense of normalcy related to family voice sounds and touch (Bergbom, 2000; Granberg, Engberg & Lundberg, 1999), increased a sense of well-being for patients, and provided opportunity for patient and family to say good-bye before death. Additional reports from the Gurley (1995) study included that open FP strengthened the role of family as a support system and facilitated opportunity for family members and physicians to be present during the same time.

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Findings from studies conducted by Bergbom and Hupcey found that one of the benefits of FP responded to the highest need identified by their research respondents. Patient respondents reported the need to feel safe and secure during hospitalization among their highest priorities and FP fulfilled this need. One (n= 5) patient poignantly recounted how the presence of family provided a sense of inner calm that was experienced while awake or asleep (Bergbom & Askwall, 2000; Olsen, Dysvik & Hansen, 2009). The presence of family provided a sense of comfort that supported patient relaxation and perceived security. These feelings were identified as being significantly influenced by the presence of family and friends who were described as providing vigilance at the bedside (Hupcey, 2000). Several patients in the Hupcey study shared positive feedback about unit personnel adding that the staff's kindness did not substitute for the presence of the patient's family. Patient participants also discussed how family met patient needs related to information. Family helped patients to understand medical information, treatments, and medications. Some patients acknowledged that while family were a source of information from outside of the hospital there was also frustration due to perceived information that family was withholding. An important aspect of feeling safe included relationships between families and ICU staff although there is a deficit of knowledge regarding how these relationships affect ICU patients (Hupcey, 2000).

Another researcher (Eichhorn, et al., 2001) reported findings delineating how family assisted to decrease stress, anxiety, and fear for patients when present at the bedside. Respondents believed that family members acted as advocates, helped to remind caregivers of the personhood of patients, helped patients to maintain their self-

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esteem and helped patients to feel loved and wanted/needed (Bergbom & Askwall, 2000). Presenting results from a multicenter evaluation study of patient satisfaction, Heyland (2002) reported that the majority of 611 family members of surviving ICU patients were satisfied with overall care and decision-making. They were least satisfied with the waiting room atmosphere and infrequency of physician communication which is consistent with results reported by Azoulay, et al. (2000) regarding patient, family and physician communication.

Studies conducted by three additional researchers (Fumagalli, Boncinelli, Lo Nostro, Valoti, Baldereschi, Di Bari, et al., 2006, Gonzalez, 2004; Roland, Russell & Richards, 2001) identified patient physiologic and psychosocial benefits. Respondents of the Gonzalez and Roland, Russell & Richards' studies rated visiting as non-stressful, explaining that FP promoted rest and moderate levels of comfort, reassurance and calmness. Fumagalli, et al. compared patient safety and health outcomes of patients randomized to unrestricted (UVP) and restricted (RVP) visiting policy groups. Overall, findings identified that the UVP was more beneficial for patients than was the RVP. Specifically, more frequent major cardiovascular complications were observed in patients from the RVP group compared to those in the UVP group. Patient anxiety was reduced at a statistically significant level in patients in the UVP group over the course of ICU admission to discharge. Patient rooms of those in the UVP group were significantly more contaminated with bacteria yet, the incidence of pneumonia, urinary tract infections, generalized sepsis and septic complications were similar in the two experimental groups.

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The repertoire of FP benefits creates a patient healing and recovery gestalt that aligns FP with the values and mission of professional nursing. Empirically examining the impact of the benefits using a theory guided research design with an adequate sample effect size of registered ICU nurses reinforces this alignment and credibly substantiates the value of FP.

Family Benefits

Family members, acknowledged for beneficial FP contributions to patients and nurses, are also themselves recipients of benefits associated with FP. Family presence benefits experienced by family members assist them to manage the difficult circumstances related to ICU hospitalization of their family members.. Admission of loved ones to critical care can be as traumatic for family members as it is for patients who are conscious at the time of admission. The traumatized feelings of family members have been associated with the critical nature of their loved one's illness, uncertainty of the illness outcomes and separation from their loved one (Williams, 2005). Consistent with this experience Auerbach, Kiesler, Wartella, Rausch, Ward and Ivatury (2005) identified that family members of ICU patients experienced levels of acute stress disorder (ASD) symptoms that were similar to those of patients admitted to a PTSD psychiatric unit. Other research findings have identified how the benefits associated with being present at the patient's bedside can alleviate some of the trauma experienced by family members. Benefits resulting from FP that accrue to family members encompass outcomes that include satisfaction, improved relations and communication with caregivers, reduced anxiety, and lower levels of depression and grieving. While several studies have documented improved family satisfaction

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associated with FP (Petterson, 2005; Meyers, 2000; Duran, Oman, Abel, Koziel & Szymanski 2007; Marco, 2006; Novaes, 2001) other findings may justify the improved satisfaction as likely due to fulfilling the need family members have to be close to patient loved ones and the opportunity provided for family to interact with nurses and physicians (Garrouste-Orgeas, Phillippart, Timsit, Diaw, Willems, Tabah, et al., 2008; Marco, Bermejillo, Garayalde, Sarrate, Margall & Asisin, 2006; Slota, 2003). The opportunity for increased interaction time has afforded family members benefit due to improved relationships with ICU team members, fulfillment of family member need for information and reduced anxiety (Bijttebier, Vanoost, Delva, Ferdinande & Frans, 2001; Eichhorn, Meyers, Guzzetta, Clark, Klein & Calvin, 2001; Meyers, Eichhorn, Guzzetta, Clark, Klein, Taliaferro & Calvin, 2000; Marco, et al. & Garrouste-Orgeas, et al.).

Studies by Dowling (2005) and Roland, Russell & Richards (2001) conducted to redesign family support and increase open visiting flexibility for family members of ICU patients. Findings revealed that following implementation of the performance improvement initiatives communication between family and staff improved, satisfaction increased dramatically, complaints decreased, family and patient perceptions of quality of care improved. Stress and anxiety levels were significantly reduced and family members described feelings of support from the ICU Team.

Presence of family members at the patient's bedside facilitated more timely receipt of information to family about the patient's condition, allowed visiting at times when convenient for family, and lessened the family's sense of helplessness and worry (Meyers, Eichhorn, Guzzetta, Clark, Klein, Taliaferro & Calvin, 2000; Slota, 2003). Family members reported that FP reinforced for them the seriousness of the patient's

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condition, provided firsthand knowledge of how hard providers worked to save their loved one during resuscitation, and when compared to those who had not witnessed resuscitation of loved ones, family members experienced shorter periods of grief (Duran, Oman, Abel, Koziel & Szymanski, 2007).

Nurse Benefits

Over time concerns regarding what nurses believed and/or experienced related to FP has been published (Gurley, 1995; Helmer, Smith, Dort, Shapiro & Katan, 2000; McClenathan, Torrington & Uyehara, 2002; Hickey & Lewandowski, 1988; Mitchell & Lynch, 1997; Osuagwu, 1991; Plowright, 1998; Simon, 1997). Researchers have also reported benefits that some nurses have experienced when participating with open FP. Findings from the Ellison (2003) study identified that FP was perceived by the study registered nurse respondents (39%, n=75) as an opportunity to improve communication between themselves, other staff and family members. Additionally, Ellison reported that even though FP was differentially valued by respondents, 80% (n=166) of the registered and licensed practical nurses indicated a desire to be present during invasive procedures compared to 56% (n=116) for resuscitation if their own family member was the patient. Even though nurse participants (n= 97, 78.2%) of the Fullbrook, Albarran and Larour study (2005) agreed that their unit doctors did not want family members present during resuscitation, nurses were split with 45.5% (n=56) indicating a preference to also not have family present compared to 33.3%, n=41 who identified a preference to have family members present. Despite holding several negative views of why FP during resuscitation should not be allowed, nurses (42.3%, n=52) felt that the presence of family during an unsuccessful resuscitation attempts would have positive

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benefits for family and would create a stronger bond between family members and the nursing team.

The most frequent nurse benefit mentioned by several researchers has to do with receipt of information from family members that helped nurses to learn more about the patient and family. Research findings from studies conducted by Gonzales (2004) and Davidson (2007) are among findings from several other studies (Agard & Lomberg, 2010; Farrell, Joseph & Schwartz-Barcott, 2005; Marco, Bermejillo, Garayalde, Sarrate, Margall & Asiain, 2006; Berti, Ferdinande & Moons, 2007) that have identified valuable information about patients and their roles within the family. Some of the nurse respondents have reported that information from family members have helped nurses to personalize more comprehensive perspectives about the personalities and coping styles of their patients. Others have added that such information has offered opportunity to provide therapeutic intervention for both patients and family (Kirchhoff, 1985).

Reports from the Ramsey (1999), Roland, Russell, Richards & Sullivan (2001) and Davidson (2007) studies identified increased visitor and nurse satisfaction related to FP and Gurley (1995) shared that FP offered family the opportunity to provide positive reinforcement to nurses and other caregivers for their patient care work. This gratitude was of particular relevance when patients were unable to provide their own appreciation or feedback. Plowright (1998) presented the point that family at the bedside of patients provided occasions for family to assist nurses to perform various aspects of nursing care. From the personal experience of the dissertation researcher who has been a family member of an ICU patient, being at the bedside and assisting with nursing care allows family to assist in aiding providers, caregivers (of all disciplines/specialties) and

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other family members alike, to stay abreast of the overall medical plan and patient progress.

Quality of Care.

The ever present interest to improve quality and safety in intensive care units exist for several reasons not the least of which are the high cost of care in ICUs and the potential for patient harm (Garland, 2005; Chelluri, 2008). In 2005 the Joint Commission on Accreditation of Health Care identified that there was 4.4 million ICU admissions annually with an average cost per day identified by Dasta, McLaughlin, Mody and Piech (2005) as approximately three times that of a regular hospital bed. A study conducted by Donchin, et al., (1995) identified 554 ICU medical errors in a 4 month period with 2 serious errors occurring each day in a six-bed medical surgical intensive care unit. The unit was one of six critical care units in a 650-bed tertiary teaching hospital. The annual occupancy rate was 110% with overflow accommodated in the recovery room.

The IOM reported in 2000 that 44,000 to 98,000 Americans die annually from preventable medical errors. The report ignited controversy, enduring dialog and a growing body of literature from which interventions can be developed. According to the most recent data available, far too little patient safety has improved (Moyen, Camire' & Stelfox, 2008) and few hospitals have implemented a substantial number of the IOM recommendations for improvement (Leape & Berwick, 2005; Longo, Hewett, Ge & Schubert, 2005). Some hospitals have implemented computerized medication systems in an effort to improve safety and follow IOM recommendations however, results have been mixed.

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One study conducted a systematic review of studies related to the effect of electronic prescribing on medication errors and adverse drug events (Ammenwerth, Schnell-Inderst & Siebert, 2008). The purpose of the study was to identify the effect of electronic prescribing on the risk of medication errors and adverse events (ADEs). Medication errors can lead to ADEs which Ammenwerth, et al (2008) defined as noxious and unintended responses to drugs. Six of the sampled twenty-seven studies were related to computer systems in ICUs (Bates, Leape, Cullen, Laird, Petersen & Teich, et al., 1998; Bates, Teich, Lee, Seger, Kuperman, Ma'Luf, et al., 1999; Colpaert, Claus, Somers, Vandewoude, Robays & Decruyenaere, 2006; Evans, Pestotnik, Classen, Clemmer, Weaver, Orme, et al., 1998; Fraenkel, Cowie & Daley, 2003; Shulman, Singer, Goldstone & Bellingan, 2005). Three of the six ICU studies involved the evaluation of a commercial computer system and the remaining four were home-grown systems. Five (Bates, et al., 1999; Bates, et al., 1998; Copaert, et al., 2006; Shulman, et al., 2005; Fraenkel, et al., 2003) of the ICU studies showed significant relative risk reduction for potential ADEs of 35% to 98%. While three of the ICU studies reported a significant risk reduction for ADEs of 30% to 84%, one study (Bates, et al., 1998) showed a small, not statistically significant increase of 9% in the risk reduction for ADEs.

Similarly Rothschild, Keohane, Cook, Orav, Burdick, Thompson, et al., 2005 found that medication errors and adverse drug events associated with intravenous infusion pumps were common and capable of serious problems. Researchers identified that the pumps did not reduce the rate of serious medication errors and posited that this was due to pump design and practices that nurses frequently violated. The pump set-

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up made it easy for the nurses to bypass the drug library and the system history showed that there were frequent overrides.

The shortage of critical care nurses, an international problem, heightens the concerns regarding quality and safety (Poalillo, Jimenez & Falk, 2006; Williams, Schmollgruber & Alberto, 2006). The presence of fewer nurses working in ICUs have been associated with complications such as nosocomial infections, decubiti, falls, medication errors, patient injuries and increased mortality (Whitman, Kim, Davidson, Wolf & Wang, 2002; Halm, Kandels, Balock, Gryczman, Krisko-Hagel & Lemay, et al., 2005). Despite the use of sophisticated monitoring equipment and alarms Buckley, Short, Rowbottom & Oh (1997) found that direct observation of critically ill patients detected more adverse events than was detected by equipment. The study was conducted to identify frequency and causes of adverse events to prevent recurrence. Two hundred eighty-one (281) incidents were voluntarily reported by nurses and physicians over a 36 month period of time from 3300 ICU admissions. Ninety-five percent (95%) of the incidents occurred in the ICU compared to incidents that occurred during transport from/to the ICU or treatment in other departments. Over 50% of the incidents were detected by direct observation of patients compared to 27% detected by monitoring systems. The most common incidents reported involved airway management, invasive lines, tubes, and drains. Associated issues emanated from accidental removals, incorrect patient positioning, obstruction, disconnections, and communication problems. These are quality and safety problems that family members may have helped to prevent or could quickly have had resolved if allowed to execute

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their self-designated roles of vigilance at the bedside of loved ones (Hupcey, 2000; McAdam, Arai & Puntillo, 2008).

There were no studies that examined associations between FP and reduction of medication or other adverse medical errors. Studies have however, mentioned the increased sense of safety experienced by patients with the presence of family at the bedside. Although there are no empirical findings related to these associations, a review of patient safety and medication error literature supports hypothesized linkages between adverse medical errors and FP. Medication errors have occurred with considerable frequency (Bates, Cullen, Laird, Petersen, Small, Servi, et al., 1995; IOM, 2006) and resulted in substantial cost to the health of patients and hospitals (Classen, Pestonik, Evans, Lloyd & burke, 1997; Bates, Leape, Cullen, Laird, Petersen, Teich, et al., 1998).

A study of two large tertiary hospitals in which ICUs were oversampled and obstetric units were omitted Bates, et al. (1995) studied the incidence of actual and potential adverse drug events (ADEs). Intensive care units were oversampled because ADEs were more common in ICUs compared to general care units and obstetric units which have few ADEs. In the sample that included five ICUs and six general care units, ADEs were 11.5 per 1000 patient-days and 6.1 per 100 admissions (out of a total of 21412 patient days and 4031 admissions). The rate was highest in medical ICUs (19.4 per 1000 patient days).

Tissot, Cornette, Demoly, Jacquet, barale and Capellier, (1999) identified that one fifth (19%) of medication errors in the ICUI are life threatening and approximately 42% require life-sustaining treatments. However, others (Classen, Pestonik, Evans,

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Lloyd & burke, 1997; Bates, Leape, Cullen, Laird, Petersen, Teich, et al., 1998) have pointed out that death related to such errors is just the tip of the iceberg as human and societal affects may be greater. Patients experience prolonged hospital stays and some may never fully recover to their pre-incident condition. Additionally, in the experience of the researcher errors can negatively impact patient and family confidence in care being provided and the hospital at large. Nurses and physicians who witness or are involved in life-altering patient adverse events may require psychological intervention and often are bothered by the incident years after its occurrence (researcher work experience).

The Classen et al. study identified the average costs related to one ADE based on the university affiliated study hospital as $2013 with a range of $677 to $9022 for common types of ADEs. Liability expense or patient injury costs are not included in these figures. When extrapolated to the United States as a whole using the study hospital ADE occurrence rates and an estimated 32 million yearly hospital visits, over 770,000 hospital patients would experience an ADE at an approximate annual cost of $1.56 billion to hospitals. The cost does not include outpatient treatment or patient disability. Compared to the control group, patients in the experimental group had a crude mortality rate of 3.5% versus 1.05% ($p<.001$), and mean length of stay of 7.69 for patients with ADEs versus 4.46 ($p<.001$) for control group patients. Attributable excess length of hospital stay was 1.74 days ($p<.001$). Patients suffered a range of side effects from simple rashes to serious cardiac problems to drug induced hemorrhage.

Valentin, Capuzzo, Guidet, Moreno, Dolanski, Bauer et al. (2006) examined the prevalence of sentinel events in 220 ICUs in 29 countries. Medication errors were the second most frequent adverse event observed (10.5 events/100 patient days). The

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most frequent sentinel events were identified with 158 (out of 391) patients over 24 hours and were related to lines, catheters and drains. The As a part of the Harvard Work Hours and Health Study (Rothschild, et al 2005) on the effects of intern sleep deprivation on patient safety, 78% of the serious errors were related to medications. To determine the incidence of medication errors in a 16-bed adult medical/surgical ICU in a tertiary academic medical center the study by Kopp, Erstad, Allen, Theodorou and Priestly (2006) found 132 errors of which 110 (83%) were classified as potential and 22 (17%) as preventable. Errors of omission, wrong dose and wrong drug were the three largest categories of errors at 23%, 20% and 16%, respectively.

Calabrese, Erstad, Brandl, Barletta, Kane and Sherman (2001) examined the types and severity of errors by having medication administration processes observed twice per day of 851 ICU patients admitted to one of five United States ICUs over a 3 month period of time. Each patient had two observations per day for intravenous and oral medications with the determination of errors based on verification of appropriate product, dose, infusion rates, medication concentration, and time of administration and absence of compatibilities. One hundred-eighty seven (187) medication errors (3%, 5744 observations) were identified. Results were categorized according to frequency of error: wrong infusion rate (40%), dose omission (14.4%), improper dose (11.7%), and wrong time (13.9%). The highest proportion of medication errors was due to vasoactive drugs (32.6%, 61/187) and included drugs such as epinephrine, potassium chloride, and magnesium. The second highest proportion of errors was sedative and analgesic classes (25.7%, 48/187) and included drugs such as antivan and fentanyl. Often errors related to drugs like these involve side effects that are observable and/or can be

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communicated (to family) by patients. In the early stages side effect manifestations may be so slight that only family members familiar with patients may be able to identify the changes.

Approximately 50% of all medication errors have been identified as preventable and require multiple approaches to achieve improvements (Bond, Raehl & Franke, 2001; Krahenbuhl-Melcher, Schlienger, lampert, Haschke, Drewe & Krahenbuhl, 2007). Family at the patient's bedside could be one approach among others. Involving family in strategies to reduce errors would respond to needs expressed by patients for safety and the role as vigilant protector that families want to fulfill (Bergbom & Askwell, 2000; Carr & Fogarty, 1999; Hupcey, 2000).

Communication.

Communication is fundamental to the clinical practices of nurses and physicians and is essential for patient safety, an important component of quality of care. It can be the cause of, and a solution for patient safety problems. Primary communication problems reported by patients and families are also those that have also been identified as areas of concerns related to patient safety. Included are direct patient/family communications, interactions among unit team members and across other disciplines or departments (Azoulay, Pochard, Chevret, Lemaire, Mokhtari, Jean-Roger, et al., 2001; Azoulay & Sprung, 2004; Bergbom & Askwall, 2000; Hupcy, 2000; Jamerson, Scheibmeir, Bott, Crighton, Hinton & Cobb). Thousands have been and continue to be harmed during receipt of health care services (IOM, 2006, Tissot, Cornette, Demoly, Jacquet, Barale and Capellier, 1999). The Institute of Medicine report identified that on average at least one medication error occurs every day for every hospitalized patient

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and Bates, Cullen, Laird Petersen, Small, Servi, et al. (1995) reported 14.5 mean errors per 1000 patient days in surgical ICUs and an even higher rate in medical ICUs (15.3 per 1000 patient days). The complexity and pace of patient-related activities in the ICU creates an incubator for medical errors. Poor communication between clinicians and other caregivers in ICUs have been shown to be a common underlying factor of adverse events (Garland, 2005; Manser, 2009; Sutcliff, Lawton & Rosenthal, 2004; Pronovost, Thompson, Holzmuller, Lubomski, Dorman, Dickman, et al., 2006).

After considering that high-risk industries such as aviation and nuclear power had determined that it is the non-technical skills as opposed to technical expertise that is critical to maintaining safety, Reader, Flin, Lauch and Cuthbertson (2006) conducted a study to identify the prevalence of non-technical skills that are important for safety in ICUs. Non-technical skills are the skills that are essential for maintaining safety but are not directly related to technical expertise. Non-technical skills include abilities related to areas such as "communication, teamwork, leadership, situation awareness task management, and decision-making" (pp 551). A systematic review of 10 articles that addressed reporting of critical incidents in ICUs was undertaken using a model (Non-Technical Skills Behavioral Marker System) established for Anesthesia departments. Out of 2677 incidents and 5610 contributory factors 50% were attributed to deficits related to non-technical skills involving teamwork and decision-making. Reader, et al also pointed out that surveys of attitudes about teamwork in ICUs have also focused on non-technical skills. Boyle and Kochinda (2004) did just this in an intervention study regarding collaborative communication between nurse and physicians in two ICUs. Dougherty and Larson (2005) reviewed instruments used to measure nurse-physician

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collaboration and found that most research on collaboration is conducted in ICUs. The researchers posited that ICUs are chosen as study sites for collaboration because of higher rates of illness severity, medical errors and mortality.

Pronovost, et al. (2006) reported outcomes from a patient safety reporting system developed to collect incidents in ICUs. The report is comprised of 2075 anonymous incidents from 23 ICUs that were voluntarily provided by nurses, physicians and pharmacists. The Four top outcomes reported included errors related to medications which was the most common incident (42%) followed by incorrect/incomplete care (20%), equipment failures (15%), and problems related to lines, tubes, and drains. While 32% of the incidents were related to team and patient factors, approximately 55% of the incidents were related to communication that involved verbal and written forms of communication, physicians, staff, and supervisors. Issues occurred primarily during routine care (19%) but also included handoffs among personnel (12%) and during times of crisis (2%). Similarly the study by Manojlovich, Antonakos and Ronis (2009) investigated the relationship between nurse perceptions of elements of communication between nurses and physicians and select patient adverse outcomes (decubti, ventilator associated pneumonia and blood stream infections). Additionally relations of characteristics of the practice environment to rates of the selected outcomes were also explored. Overall, characteristics of the nurse practice environment did not contribute to adverse patient outcomes and nurse perceptions of communication between nurses and physicians were not related to the selected adverse outcomes.

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It is clear that communication is pivotal to patient safety and quality of care. Understanding the nature of medical adverse events and how communication may be linked provides opportunity to decrease risk to patients and meet patient and family communication interests.

Satisfaction.

It has been shown that patient satisfaction has gained recognition as a measure of quality in health care and is thought of as the ultimate end point of the patient's perspective regarding assessment of quality of care (Chow, Mayer, HonFREng & Athanasiou, 2009; Johanson, Oleni & Fridlund, 2002). As already discussed in this paper some researchers have identified that patients and family were satisfied with care provided in ICUs however, communication and whether open visiting was permitted were important areas of dissatisfaction (Dowling & Wang, 2005; Heyland, 2002; Auerbach, et al., 2005; Azoulay, et al 2000). Several researchers as previously presented in more detail within this paper, evaluated redesigned ICU family visitation programs (Dowling, Vender, Guillianelli & Wang, 2005; Marco, Bermejillo, Garayalde, Sarrate, Margall & Asian, 2006; Novaes, 2001; Petterson, 2005; Roland, Russell, Cupepper & Sullivan, 2001). Each of the programs involved newly more flexible family visitation and resulted in improved family satisfaction and quality of care.

Exploring the influence of background factors related to the TPB major determinants facilitates insight related to nurse beliefs. Findings from this kind of research can contribute important empirical knowledge about the impact of background factors on behavior and can guide the development of targeted interventions to achieve behavioral changes related to FP.

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Theory of Planned Behavioral Concepts

Within the TPB behavioral beliefs are personally held convictions regarding the probability that a specified act will produce a given outcome. The beliefs in combination with how one feels about the expected outcome determines one's attitude toward the behavior. Attitude is the positive or negative judgment about the performance of the behavior (Ajzen, 2001). Normative beliefs underlie subjective norms and pertain to perceived convictions regarding approval or disapproval from others who are influential to an individual. Subjective norms on the other hand refer to the actual behavior of the referent and the individual's motivation to comply with the observed/known behavior (Ajzen, 2005). Control beliefs are convictions regarding the presence or absence of behavior facilitators or obstacles and perceived behavioral controls pertain to perceptions regarding one's ability to execute the given behavior. While control beliefs may emanate from personal past experiences with the behavior, they usually come from second – hand information or observations of friends and acquaintances (Ajzen, 2005).

Within the TPB intention is a central construct and antecedent to behavior. It is recognized as a personal behavioral inclination or the readiness to execute a given behavior. Attitude toward a behavior and associated subjective norms are known to guide one's intention to perform a given behavior. Intention is considered the "conative" component of attitude and as such provides conceptions about a strong attitude – intention relation (Fishbein & Ajzen, 1975; Peters & Templin, 2010 pp 174).

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Chapter 3

Research Design and Methods

This chapter addresses the methodological procedures implemented in the current study. Included sections are research design, sample, data collection instruments, specific aims and hypotheses, data analysis, data collection procedures, sample recruitment and data management. The study investigated the relations between background factors and nurse beliefs related to nurse decisions and intentions of unrestricted family presence (FP) in adult ICUs. Identification of associated attitudes, perceived obstacles and facilitators, and important personal influences related to unrestricted FP were also included.

Research Design

The study utilized a cross – sectional research design to examine relations between predictor variables *(Social:* age, gender, race/ethnicity, education, certification; *Personal:* past experience with FP as patient or family member, knowledge related to care of families; *Situational:* patient healing and recovery, family interpretation of medical information for patients, family satisfaction, reduced family anxiety, reduced medication errors, and time required of nurses*)* and the outcome variable *(decisions and intentions related to open FP in adult ICUs).* In addition, the study examined the extent to which nurse beliefs mediated relations between predictor and outcome variables. The design of the study enabled collection of data from multiple participants; ICU staff nurses, managers, administrators, educators, and advanced practice nurses.

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Sample

A national convenience sample of registered nurses who were members of the American Association of Critical Care Nurses (AACN) for whom email addresses were known were recruited as participants in the study. Based on a formulation of 80 percent power, an effect size of 0.15, 16 predictors, and a two-tail significance level of 0.05, a sample of at least 150 subjects was sufficient to address the research hypotheses. The GPower computer software (version 3.1.3) was used to calculate the required sample size (Faul, Erdfelder, Buchner & Lang, 2009).

Inclusion criteria for the sample included registered nurses who worked with a United States critical care in-patient adult population. Participants from a variety of nurse positions and shifts were accepted. Nurses who worked with critical care patients in hospitals outside of the United States were excluded from participation in the study. The total AACN membership with known email addresses was 194,000 individuals who receive the AACN electronic newsletter. Participant response rate was projected using information regarding member access to the electronic newsletter. In October 2011, a total of 29,000 members opened the newsletter and a 3000 member subset (of the 29,000) actually clicked on items within the newsletter (L. Nesoff, phone communication, December 29, 2011). The electronic newsletter data indicated the potential for a sufficient participant population from which the sample could be obtained for the study. Additionally, the researcher of a prior study received 2800 usable survey responses (over a duration of 4 weeks) after using the AACN electronic newsletter alert process despite a desired sample size of 400 (L. Bell personal email communication, January 7, 2012). Because of participant response to the two previous AACN online

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surveys and known nurse interest and passion triggered by the topic of the proposed study, request for approval from the IRB was made for a sample much larger (3000 participants) than what was required to support analysis of the hypotheses.

AACN membership demographics include 78% Caucasians, four percent African Americans, three percent Hispanics, 12% Asians and three percent other ethnicities. There are 235 Local Chapters including all U.S. states, China, Europe, Pacific and Middle East (AACN, 2011). Members from chapters located in foreign countries were excluded from the study.

Data Collection Instruments

A tool, the Adult Intensive Care Nurses' Family Presence Questionnaire (AICFPQ) was developed by the researcher to collect data for the study. See Appendix A. The tool measured nurse beliefs, attitudes, perceived influences, background variables and behaviors related to unrestricted FP in adult ICUs. In preparation for instrument construction, a comprehensive review of literature pertaining to FP was conducted and included searches of the Cumulative index to Nursing and Allied Health Literature (CINAHL), Medline, ProQuest Research, and other Science Direct databases. The purpose of the literature review was to identify salient concerns, gaps, and nurse beliefs related to FP in adult ICUs.

The AICFPQ contained two sections; an eighteen item demographic profile and a fifty-eight item questionnaire that evaluated the predictors, outcome (FP), and nurse beliefs (mediator). The demographic profile included items that were related to FP and nurse background factors. It was designed to provide distinguishable clarity regarding the individual characteristics of the participants. All but one question was closed ended

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and probed information such as age, gender, education, employment, unit and hospital details including bed size, classification, official visiting policies, etc.

Section two contained four subscales that assessed the TPB concepts of behavioral beliefs/attitudes (B-Attitude subscale), normative beliefs/subjective norms (B-Subject/Norms subscale), perceived behavioral control (PBC subscale) and intention (I-subscale). There were thirty-three behavioral and attitude items that examine FP perceptions of beliefs related to attitudes, behavior and associated behavioral consequences. Nine normative beliefs and subjective norm items solicited nurse perceptions regarding social pressures from others about FP. Remaining were three intention, nine control, and three miscellaneous questionnaire items that focused on planned behaviors, perceived obstacles to FP, and other miscellaneous inquiries related to FP. One item required a narrative response and all others contained 7-point numerically anchored Likert-type response choices. Answer choices ranged from 1–strongly disagree to 7–strongly agree (Francis, et al., 2004).

The AICFPQ was piloted to identify concerns related to content, comprehension and response categories. Factor analysis was conducted on section two of the questionnaire (quantitative items only) to determine reliability and underlying dimensionality.

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Planned Analysis for specific aims

Specific Aim #1: Identify the relation of nurse social variables on nurse-reported intentions and decisions regarding FP in adult ICUs.

H1a: Older nurses are more positive toward FP than younger nurses.

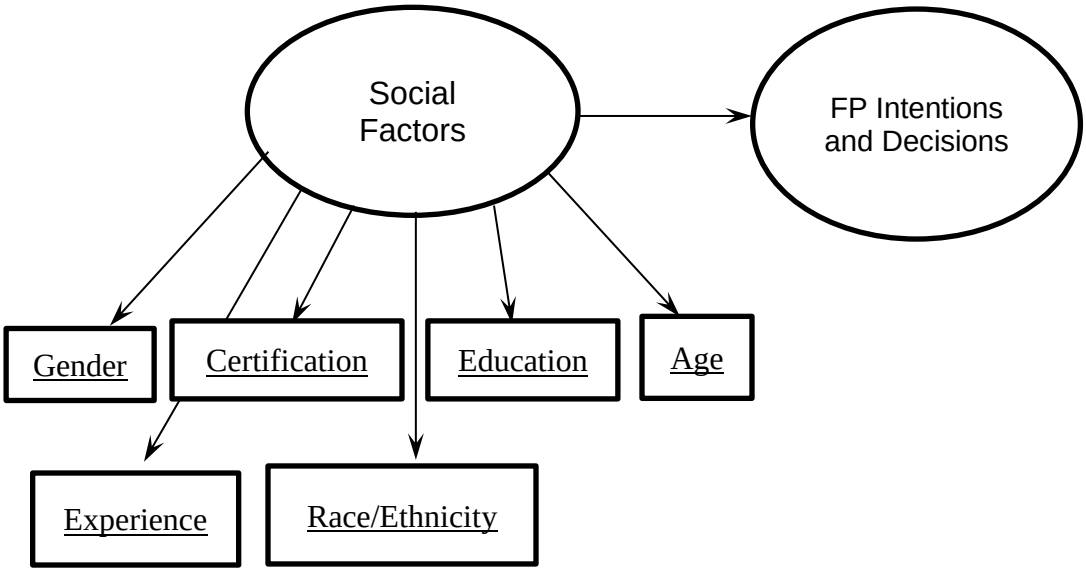
H1b: Male nurses are more positive toward FP than female nurses.

H1c: African American and Hispanic nurses are more positive toward FP than non-African American and Hispanic nurses.

H1d: Nurses with higher levels of education are more positive toward FP than less educationally prepared nurses.

H1e: Critical care certified nurses are more positive towards FP than non-critical care certified nurses.

Model for H1a-H1e



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Specific Aim #2: Identify the mediating influence of nurse behavioral beliefs on the relation between social variables and nurse-reported intentions and decisions regarding FP in adult ICUs.

H2a: The nurse belief score will partially mediate the relation between age and nurse-reported intentions and decisions regarding FP.

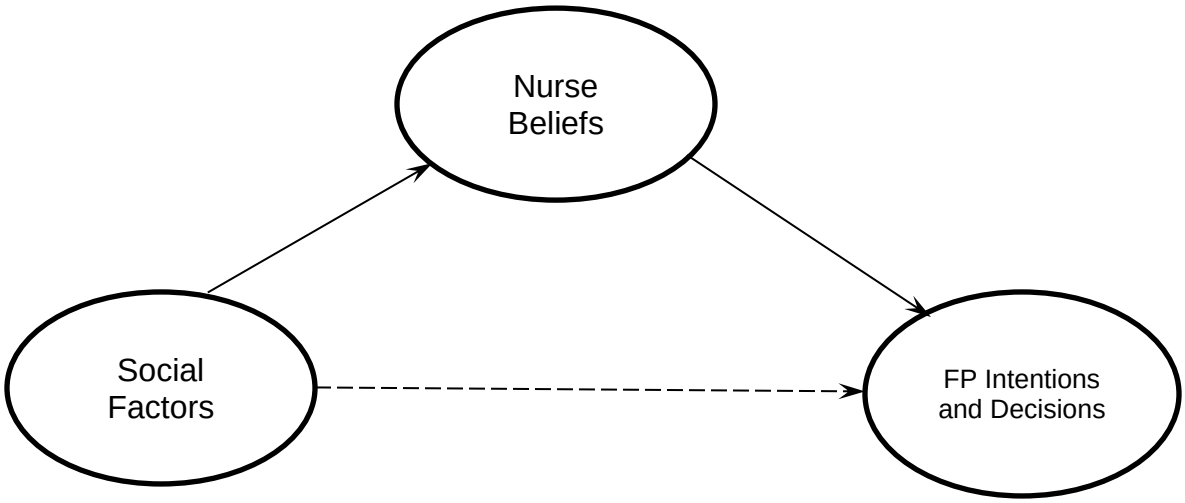
H2b: The nurse belief score will partially mediate the relation between minority nurses and nurse-reported intentions and decisions regarding FP.

H2c: The nurse belief score will partially mediate the relation between gender and nurse-reported intentions and decisions regarding FP.

H2d: The nurse belief score will fully mediate the relation between education and nurse reported intentions and decisions regarding FP.

H2e: The nurse belief score will partially mediate the relation between certification and nurse-reported intentions and decisions regarding FP.

Model for H2a-H2e



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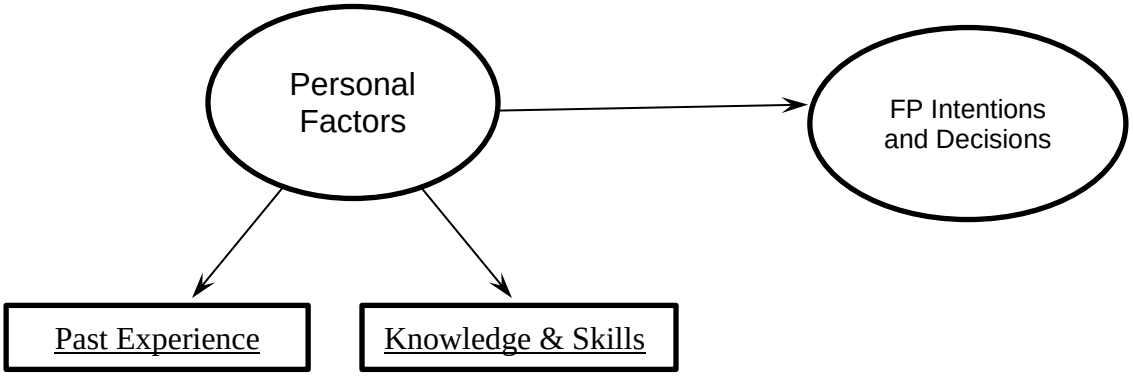
Specific Aim #3: Identify the relation of nurse personal variables on nurse-reported intentions and decisions regarding FP in adult ICUs.

H3a: Past experiences as an ICU patient or family member will be positively associated with nurse-reported intentions and decisions regarding FP.

H3b: Increased knowledge and skills regarding care of patient families will be positively associated with nurse-reported intentions and decisions regarding FP.

Model for H3a-H3b



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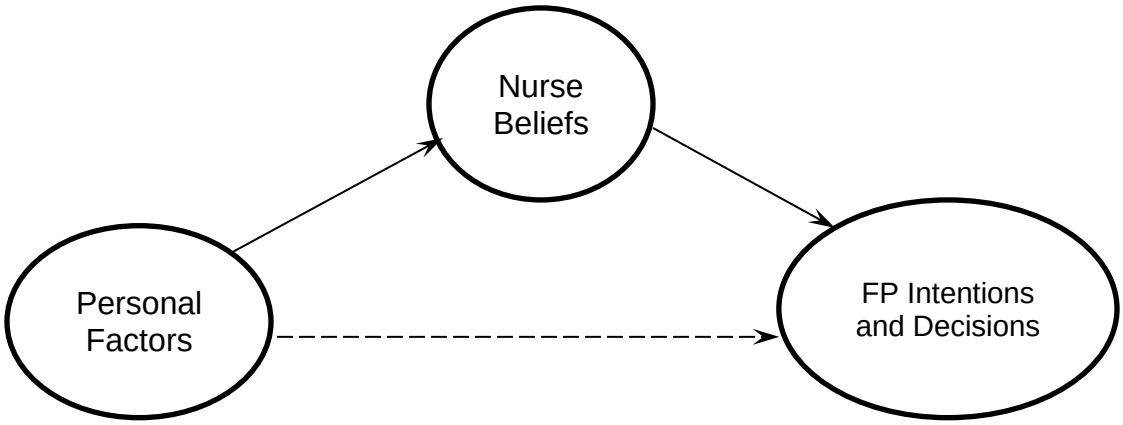
Specific Aims #4: Identify the mediating influence of nurse behavioral beliefs on the relation between personal variables and nurse-reported intentions and decisions regarding FP in adult ICUs.

H4a: The nurse belief score will fully mediate the relation between past experiences and nurse-reported intentions and decisions regarding FP.

H4b: The nurse belief score will partially mediate the relation between knowledge and nurse-reported intentions and decisions regarding FP.

Model for H4a-H4b



Specific Aim #5: Identify the relation of nurse situation variables on nurse-reported intentions and decisions regarding FP in adult ICUs.

H5a: Nurse perceptions of reduced medication errors will be positively associated with nurse-reported intentions and decisions regarding FP.

H5b: Nurse perceptions of family helping patients to understand medical Information will be positively associated with nurse-reported intentions and decisions regarding FP.

H5c: Nurse perceptions of patient recovery and healing will be positively associated with nurse-reported intentions and decisions regarding FP.

H5d: Nurse perceptions of decreased family anxiety will be positively associated with nurse-reported intention and decisions

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regarding FP.

H5e: Nurse perceptions of insufficient unit space to accommodate visitors will be negatively associated with nurse-reported intentions and decisions regarding FP.

H5f: Nurse perceptions of family satisfaction will be positively associated with nurse-reported intentions and decisions regarding FP.

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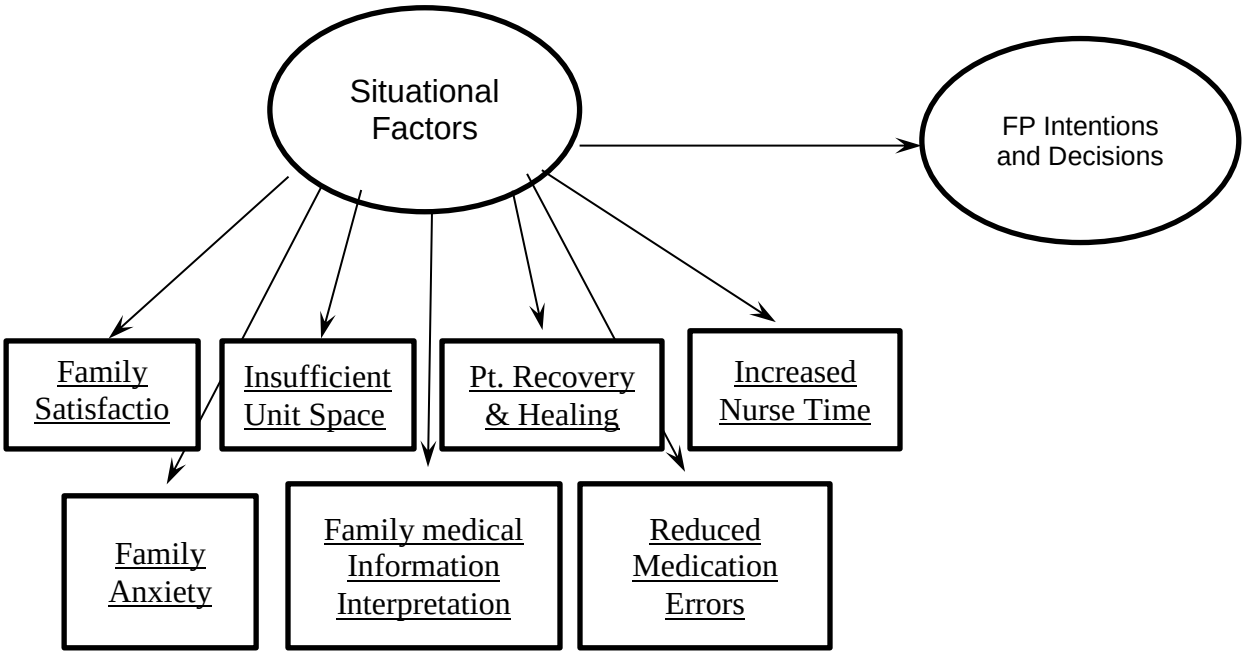
H5g: Nurse perceptions of increased time required with families due to FP will be negatively associated with nurse-reported intentions and decisions regarding FP.

Model for H5a-H5g



Data Analysis

Following electronic collection, all data were exported from the on-line survey tool, Survey Monkey, into IBM PASW Statistics (v. 20). Descriptive statistics including frequency distributions, measures of central tendency, dispersion and regression

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analyses were conducted on variables of interest to organize, summarize, and facilitate understanding of data.

Adult ICU Family Presence Scales were obtained using Principal Component Factor Analysis. Following scale assessment via descriptive statistic analysis, differences on scale scores based on age (5-group), gender (male vs female), education level (4-group), certification (ICU certification vs no ICU certification), and race (Caucasian vs not Caucasian) were performed. These analyses were completed using t-tests (gender, race, and certification) and Spearman's Rho correlations (age and education level).

Principal Component Factor Analysis with Varimax Rotation was conducted to identify scales within the researcher-developed Adult ICU Family Presence Questionnaire. Hypotheses were assessed with Spearman's Rho correlations or Stepwise Regression analyses. Regression was used to evaluate the mediation of positive and negative nurse beliefs. In the analyses evaluating mediation, the predictor was entered in the first step ($p<0.05$ to enter, $p<0.10$ to remove) followed by the positive and negative beliefs scales in the second step. Partial or full mediation was determined by a statistically significant coefficient in model 1but not in model 2, which represented full mediation or, significance in model 1 and 2 with a decreased beta which represented that partial mediation had taken place. No change from model 1 to model 2 represented no mediation or no relationship change L. Chiodo, (personal communication, June 3, 2012; MacKinnon, Fairchild & Fritz, 2007).

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Data Collection Procedures

Approval to conduct the study was obtained from Wayne State University Investigation Review Board and the AACN Board of Directors. The data collection began in April 2012 and was completed in May 2012. Participant data was collected via Survey Monkey.

Sample Recruitment

Participants were recruited via an electronic invitation published in the AACN eNews Bulletin for 3 consecutive weeks. The electronic announcement contained a link that connected readers to the electronic survey instrument. The link opened to a page that explained the purpose of the study emphasizing how important the participant's contribution would be to the outcome and how long it would take to complete the survey. Consent to participate was confirmed via an information sheet and completion of the questionnaire. The information sheet informed respondents of the anonymity of the survey and that whether or not they choose to participate there would be no effect on their status or benefits as an AACN member. Upon selection of the questionnaire link respondents were able to continue to the survey.

Although online research is a relatively new innovation and there are known limitations, advantages are already exceeding the challenges. Speed, timeliness, flexibility, and ease of data entry and analysis are hallmarks of the advantages credited to online research (Evans & Mathur, 2005). With thoughtful planning some of the limitations can be mitigated. Internet use in the U.S. is exploding and despite an unequal demographic distribution of users, African American and Hispanic users are among the smaller but quickly growing, categories of users (Granello & Wheaton,

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2004). Nevertheless, when diversity is important to the overall purpose of a study, additional effort should be employed to ensure a more inclusive sample. An ethnically diverse sample of nurses was desired for the proposed FP study and they were presumed available for recruitment, given the demographic profile of the AACN membership. However, a recruitment issue related to acquiring a more diverse sample was experienced but a time deadline prevented extending invitations to participate to nurse members of ethnic and gender based nursing organizations such as the Chi Eta Phi Sorority, Black, Hispanic and Male Nurse Associations.

There have been mixed experiences regarding response rates to online surveys. Some researchers report lower response rates than with traditional mail surveys while others have claimed higher response rates from online surveys (Braunsbeger, Wybenga & Gates, 2007; Duffy, 2002). Employing a system of multiple reminders was reported to have improved rates for Crawford, et al. (2001). Informing participants how long the survey would take to complete and limiting the use of open ended questions improved response rates by decreasing abandonment rates.

Problems emanating from sampling biases and multiple survey submission from the same respondent are also serious problems that could pose threats to the generalizability of research findings. An online survey in which potential respondents are invited to participate, can open a research process to serious selection bias due to the potential self-selection and non-representative nature of participants. This problem can be minimized by maximizing response rates and ensuring that the research design is suitable to the selected population (Eysenbach & Wyatt, 2002). Recruitment strategies for the proposed research related to FP are similar to those that may cause

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selection bias. However given that potential FP participants were representative of the population of interest and the research aims were ones that most ICU nurses feel strongly about, selection bias was minimized.

To assist in determining participation rates and filtering out multiple survey responses from the same individual Eysenbach and Wyatt (2002) suggested that upon accessing an online questionnaire, whether the survey is completed or not, each person/computer should be assigned a unique identifier to differentiate respondents.

The advantages of online research; cost effectiveness, access to large global populations, format flexibility, speed and timeliness, are all good reasons to select the new modality to conduct research. It is important to also investigate the potential weakness of online research and to be aware that among the challenges are the continuously shifting internet population and rapidly changing technology, both of which, influences causes constant evolution.

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Chapter 4

Research Results

The purpose of this chapter is to report results of the current study which was conducted to explore relations between underlying beliefs and background factors of FP intentions and decisions made by nurses working in adult ICUs. Presentation of the chapter information will be guided by the specific study aims and hypotheses outcomes. The chapter will also include the questionnaire pilot and outcomes of the pilot used to evaluate the questionnaire used to measure study variables.

Procedures

Questionnaire Construction.

Consistent with the TPB, action was taken to identify potential FP concerns, issues and interests of ICU nurses. A comprehensive review of literature pertaining to FP was conducted and included searches of the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, ProQuest Research and other Science Direct databases. Results of this assessment identified multiple domains pertinent to issues and opportunities related to ICU visitation. Guided by the purpose of the study and TPB the domains were translated into questionnaire items that were based on theorized salient beliefs, associated structural circumstances, hypothesized influences, behaviors and intentions.

The original draft of the questionnaire contained seventy-two (72) questions which were subsequently reduced to fifty-eight (58) questions by removing redundant and unclear items. Questionnaire items were rated using a Likert-type scale of

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responses that ranged from 1 (strongly disagree) to 7 (strongly agree) (See Appendix A).

Questionnaire Pilot.

The questionnaire was piloted to: 1) estimate time for completion, 2) evaluate participant reaction to questionnaire length, 3) make sure important concerns, issues and beliefs were included, 4) assess relevance of items, 5) assess clarity of questions, 6) assess participant reaction to response categories, and 7) assess the impact of questions on participant's feelings .

Out of ten nurses who agreed to attend one of the sessions to evaluate the questionnaire a total of five nurses actually kept appointments to participate. The five nurses held positions at three major hospital systems (University Academic Science Center, and two large urban Community Teaching Health Systems). Two male ICU staff nurses were included, one who was African American and one who was Arabic. Three females participated, one White, Non-Hispanic critical care APN, one African American critical care nurse educator, and one White, Non-Hispanic ICU staff nurse. Two nurses were Masters prepared, two were Bachelors prepared and one had an Associate Degree. None of the nurses were certified. To accommodate nurses schedules individual pilot sessions were agreed to by researcher and were held at several locations (public library, university medical library, hospital classroom, two community cafés.

The same written interview guide was used with each participant to ensure dialog consistency. Additional probes for information were driven by individual responses and/or stories that were shared by participants. The time participants took to complete

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questionnaires ranged from 14 to 20 minutes, including interruptions by participants to offer commentary or ask questions. Participants unanimously responded to questions regarding clarity and indicated that the questions were understandable and clearly written. One participant expressed appreciation that items addressed actual unit experiences. The meaning of two words were not understood ("disrupt" and "infringes") by one participant but were not changed given that four out of the five participants understood meanings. All participants stated there was no discomfort experienced with questions and only one participant stated that the questionnaire was too long (this participant took 14 minutes to complete). This participant additionally advised that his peers would probably not complete the questionnaire with accurate answers because of length. Since the other four pilot subjects did not feel the instrument was too long, the questionnaire was not shortened. There were no concerns expressed regarding embarrassment, irritation, or confusion related to questionnaire items and no items of note in response to whether certain items stimulated more thinking time than others. Each participant was provided a $50 gas card in appreciation for their participation.

Data Management

Checks were conducted prior to analyses to identify missing and out-of-range data, to determine normality deviations, and/or statistical assumption violations. Participants with missing data were removed from the sample leaving a revised sample size. Detail description provided below. Because of the large sample size there was no need to provide replacements for the missing data.

In preparation for loading the questionnaire onto the electronic survey host, all questionnaire items were reviewed to make sure wording and scoring were consistent

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(for all items a score of 7 indicated strong agreement). The questionnaire was loaded and tested several times to make sure all pages and electronic buttons worked properly.

Data Analysis

The recruitment announcement was posted on the AACN eNewletter and Facebook™ sites and was open on the Survey Monkey website for approximately three weeks. The AACN recruitment announcement was removed on May 2, 2012 and questionnaire access on the Survey Monkey website was closed.

A Principal Component Factor Analysis, Varimax Rotation, with Kaiser Normalization was conducted to identify scales within the researcher developed Adult ICU Family Presence Questionnaire. Minimum Eigen value of 1 and maximum number of iterations of 25 was specified. A solution was obtained in 10 iterations.

Ten factors emerged following completion of the factor analysis and were labeled. *Factor: 1 – the Positive Behavioral Belief Subscale (PBBS)* is comprised of eighteen (18) items, fourteen (14) of which had been theoretically derived and were confirmed as belonging to this cluster in the factor analysis.. The PBBS measured underlying positively-oriented nurse-held perceptions of decisions and intent related to unrestricted FP. *Factor: 2 – the Negative Behavioral Belief Subscale (NBBS)* consists of thirteen (13) items, eleven (11) of which were identified in the factor analysis and had been previously theoretically-derived. The NBBS measured underlying negatively-oriented nurse held perceptions of decisions and intent related to unrestricted FP. *Factor: 3 – the Situational Background Factor Subscale (SBFS)* consists of seven (7) items that measured nurse perceptions about events/occurrences that may affect decisions and intentions related to unrestricted FP. *Factor: 4 – the Subjective Norm*

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Subscale (SNS) contains four (4) items that measured nurse perception of what others think about the nurse's decisions and intentions related unrestricted FP. *Factor: 5 – the Restrictive Intent Subscale (RIS)* consists of three (3) items that measured nurse perceived patient focused barriers that interfere with nurse decisions and intentions related to unrestricted FP. *Factor: 6 – Motivation to Comply Subscale (MTCS)* contains three (3) items that measured nurse perceptions about approval from important others of decisions and intentions related to unrestricted FP. *Factor: 7 – Positive Intent Subscale (PIS)* consists of two (2) items that measured perceived nurse intent to make unrestricted FP decisions when behavior could be inconsistent with structural requirements. *Factor: 8 – Positive Decision-Making Subscale (PDMS)* is composed of three (3) items that measured perceptions of intended and past decisions related to open FP. Factor: 9 – Open Race (OP) and Factor: 10 – Open Death (OD) each have one (1) item that measured intent and decisions based on race/ethnicity and impending death of patients.

Factor loadings and internal consistency reliability coefficients are presented in Table 1. Among the factors, the following scales were chosen for use in analysis of the hypotheses presented below. The positive and negative nurse belief scales (PBBS & NBBS), the intent subscales (RIS & PIS), and the positive decision making scale (PDMS). Excellent internal consistency reliability coefficients were obtained for both the positive and negative nurse belief scales (PBBS: $\alpha = 0.94$; NBBS: $\alpha = 0.92$). Adequate reliability was obtained for the RIS subscale ($\alpha = 0.75$), while marginal reliability was obtained for the PIS subscale ($\alpha = 0.67$). Poor internal consistency was identified for the

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Table 1. Factor Loadings and Internal Consistency	Component									
	1	2	3	4	5	6	7	8	9	10
FACTOR 1: Positive Behavioral Belief Scale (PBBS) – α = .94										
12. When I permit open visiting (no restrictions), I am doing something positive for patients.	.850	-.180	-.059	.079	-.093	-.011	.086	.018	-.016	.095
6. Patient satisfaction increases when open visitation (no restrictions) is practiced.	.842	-.121	-.096	.069	-.092	.005	.068	.068	-.071	.049
11. Open visitation (no restrictions) has a positive effect on the family.	.840	-.137	-.106	.060	-.101	-.050	.031	-.057	-.063	.138
46. Open visitation (no restrictions) has a positive effect on patients.	.826	-.281	-.059	.105	-.043	-.038	.110	.087	-.038	.030
3. Open visitation (no restrictions) in ICUs is good for patient recovery and healing.	.777	-.263	-.160	.137	-.111	-.021	.064	.047	.055	.010
41. Family satisfaction increases when open visitation (no restrictions) is practiced.	.771	-.090	-.012	.137	-.052	-.027	.049	.078	-.074	.012
19. Open visitation (no restrictions) decreases family anxiety.	.757	-.186	-.063	.130	-.098	-.099	-.032	.024	-.043	-.031
26. Open visiting (no restrictions) should be the policy in my ICU.	.755	-.364	-.102	.182	-.168	-.001	.102	.099	.030	.017
8. Overall patients prefer to have open visitation (no restrictions).	.751	-.123	-.072	.151	-.029	-.038	.177	-.022	-.030	.043
13. Open visitation (no restrictions) is helpful to caregivers.	.726	-.295	-.133	.014	-.119	.012	.039	-.039	.118	-.008
32. Patients rest easier when a family member is present.	.702	-.287	-.094	.040	-.060	-.017	.129	.085	.064	.005
14. Families help patients to understand medical information.	.640	-.362	-.030	-.074	-.071	.095	.068	.046	.252	.099
5. Open visitation (no restrictions) helps to reduce medical errors when family members are present.	.626	-.315	-.080	.030	-.116	.040	.102	.119	.114	-.008
4. Information about patients from family members who are at the patient's bedside can improve the quality of nursing care.	.625	-.079	-.082	-.033	-.138	.123	.109	.048	.040	.234
44. ICU nurse satisfaction increases when open visitation (no restrictions) is practiced.	.595	-.456	-.117	.111	.042	.068	-.041	.040	.160	.017
36. Open visitation (no restrictions) saves time for nurses and other team members.	.574	-.527	-.012	.048	-.044	.007	-.019	.075	.151	.053
16. Open visitation (no restrictions) causes stress for the patient.	-.535	.520	.169	-.043	.091	.086	-.143	.030	.196	.140
7. Visiting policies and practices should be adapted based on what is believed about the culture/ethnicity of the patient.	.435	-.146	.052	.014	.077	.088	.144	.064	.408	.273
FACTOR 2: Negative behavioral Belief Scale (NBBS) – α = .92										
58. Open visitation (no restrictions) causes nurses to spend an increased amount of time answering questions and providing information to families.	-.145	.653	.076	-.102	.057	.014	.103	.031	-.093	-.071
28. Open visitation (no restrictions) interferes with the patient's rest.	-.484	.647	.118	.025	.118	.044	-.138	-.099	.052	.135
37. Open visitation (no restrictions) infringes on the confidentiality of other patients in the ICU.	-.419	.632	.050	-.024	.130	.030	-.093	-.034	.140	.013
33. Open visitation (no restrictions) sometimes interferes with the nurse's management of patient visiting.	-.377	.597	.199	.005	.175	.068	-.117	-.011	.019	-.010
15. An open visitation (no restrictions) policy infringes upon the patient's privacy.	-.396	.585	.130	-.047	.207	.060	-.149	.009	.202	.058
22. Open visitation (no restrictions) makes nurses feel like their performance is constantly being scrutinized.	-.122	.553	.288	-.050	.008	.058	-.034	-.139	-.164	-.258
10. The risk of patient infection increases when open visitation (no restrictions) is practiced.	-.418	.525	.163	-.024	.294	.079	.055	-.136	.125	-.002
AICFPQ_Q29 29. When families try to help patients understand medical information, they often cause more confusion for patients.	-.472	.522	.148	.030	.154	-.031	-.079	-.035	-.060	-.026
1. Open visitation (no restrictions) disrupts nursing care to patients.	-.424	.508	.191	-.098	.235	.159	-.060	-.064	.055	-.019
40. I feel pressure to make decisions to permit open visitation (no restrictions) by family members.	-.217	.502	.222	.085	-.151	.120	-.208	.103	-.016	-.196
56. There should be certain limits on visitation in ICUs.	-.467	.489	.193	-.040	.221	.027	-.105	-.028	.002	.124
21. Open visitation (no restrictions) is exhausting for family members because they feel compelled to constantly be present.	-.409	.487	.212	.021	-.022	.038	-.199	-.043	.163	.104
43. When the unit is busy, it is too difficult to have open visitation (no restrictions).	-.427	.486	.318	-.090	.295	.073	-.108	-.014	.075	-.034

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	Component									
	1	2	3	4	5	6	7	8	9	10
FACTOR 3: Situational Background Factor Scale (SBFS) – α = .72										
20. If family members are angry or demanding, I tend to restrict their visiting more than I would for a quiet, polite family.	-.122	.229	.726	-.099	.027	-.066	.080	.040	-.062	.052
27. If I like the family members, I would let them be present at the bedside more than family members I do not like.	-.024	.182	.713	.008	.001	-.010	.020	-.156	-.001	.058
52. If the patient is conscious, I tend to allow open visiting (no restrictions) more than if the patient were unconscious or heavily sedated.	-.199	.229	.627	-.011	.062	.015	-.038	.044	.041	-.035
17. I usually permit open visitation (no restrictions) however, when I have less time to devote to family needs I deny open visitation.	-.092	.060	.619	-.019	.137	.137	-.014	-.098	.148	.055
45. In an attempt to not be caught in the middle of a conflict in communications between family members and physicians nurses may restrict visitation..	-.072	-.056	.522	-.102	.277	-.016	.025	.063	.092	-.312
47. Because of the patient stress that I anticipate will accompany open visitation (no restrictions) I sometimes deny open visitation requests.	-.221	.224	.459	-.234	.231	.009	-.142	.203	.094	.049
57. The amount of space available for patient visitors sometimes causes me to restrict the number of visitors.	-.123	.313	.407	-.025	.014	.087	-.128	.349	-.185	.072
FACTOR 4: Subjective Norm Scale (SNS) – α = .36										
30. Open visitation (no restrictions) is the usual practice in my ICU.	.082	-.068	-.145	.818	-.006	.038	.063	-.017	.124	.097
34. My nurse manager thinks I should approve open visitation (no restrictions).	.159	-.009	-.055	.811	.015	.083	-.038	.082	.003	-.096
18. The medical director of my ICU would approve if I practiced open visitation (no restrictions).	.217	-.018	.030	.719	-.053	.056	.050	-.007	-.070	.045
38. The nursing culture of my ICU unit is not supportive of nurses making decisions to permit open visitation (no restrictions).	-.014	.082	.289	-.415	-.066	.052	-.175	.005	.042	-.414
FACTOR 5: Restrictive Intent Scale (RIS) – α = .75										
54. Families should be asked to leave the unit if the patient codes and resuscitation must be implemented.	-.214	.150	.149	-.024	.759	.001	-.015	-.030	-.081	-.118
31. Families should be asked to leave the unit when the patient's condition suddenly deteriorates.	-.231	.252	.177	.009	.754	-.025	-.071	.026	.002	-.028
9. Family members should be asked to leave the unit when patient procedures must be done.	-.341	.388	.129	.009	.460	.113	-.084	-.148	-.093	.112
FACTOR 6: Motivation to Comply Scale (MTCS) – α = .48										
2. My nurse manager's approval of my family visitation decisions is important to me.	-.056	.102	-.053	-.015	.010	.795	.102	.024	-.064	.055
42. The medical director's approval of my visitation decisions is important to me.	.029	.044	.055	.088	.029	.770	.082	.064	-.033	-.068
23. Making the same decision as other nurses in my unit regarding open visitation (no restrictions) is important to me.	-.025	.151	.201	.197	-.049	.513	-.413	-.053	.136	-.022
FACTOR 7: Positive Intent Scale (PIS) – α = .67										
55. If an attending physician requested it, I would allow open visiting (no restrictions) for a particular patient even if it was not usual unit policy.	.293	-.139	.020	.050	-.020	.195	.738	-.005	.040	-.046
53. If a patient requested it, I would allow open visitation (no restrictions) even if it was not usual policy.	.371	-.139	.051	.228	-.188	.016	.638	.148	.130	.040
FACTOR 8: Positive Decision Making Scale (PDMS) – α = .36										
48. I expect to make decisions regarding ICU open visitation (no restrictions) in the future.	.226	-.073	.083	.045	.021	.195	.014	.626	-.207	-.022
50. I have very good skills and knowledge regarding how to help family members through emotional reactions to patient conditions/events.	.036	-.105	-.236	-.068	-.047	-.082	.054	.576	.360	-.018
35. I have previously made decisions allowing family members to visit without any restrictions.	.318	-.080	-.008	.265	-.118	-.106	.281	.457	.017	.196
51. It is good nursing practice to grant or deny open visiting (no restrictions) based on the race/ethnicity of patients.	.021	.110	.188	.049	-.093	-.075	.026	-.055	.636	-.214
24. Open visitation (no restrictions) should always be allowed when a patient is dying.	.213	-.012	.136	.024	-.105	-.020	-.063	.035	-.122	.666

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PDMS subscale. As a result of poor internal consistency reliability, this scale was not used in further analysis. Evidence of past FP decision making was instead operationalized as a single item from the Adult ICU Family Presence Questionnaire (item #35 – Prior Non-Restrictive FP Decisions).

In addition to using the above outcome measures (RIS, PIS, and Prior Non-Restrictive FP Decisions), two additional outcome measures were evaluated: 1) Item #56 evaluated the belief that family presence should have limits (Restrictive FP); and 2) the Open Visitation Index Score. To obtain the Open Visitation Index Score, nurses were asked the amount of time on average they allow unrestrictive visitation and the percent of time they feel it is optimal for the patient to allow open visitation. These two items were averaged to obtain the Open Visitation Index Score.

Sample Obtained

A total of 717 nurses responded to the internet survey. One nurse answered only the date, then stopped. This case was dropped. A total of 38 nurses completed only the demographic data but did not go on to answer the scaled items. After review of the survey it is possible that the questionnaire formatting was confusing to some of the participants and they thought they had completed the survey after the demographic data. Because they had no survey data, all 38 cases were dropped resulting in a final sample size of 680 critical care nurses.

Analyses were conducted to explore whether there were differences between nurses who did complete the survey and the 38 who did not. Analysis using t-tests showed no significant relation between age and the missing data cases ($t = 1.784$, $df = 715$, $p = .43$). Chi square analysis showed no significant relation between race and

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missing data cases (χ^2 = .05, df = 1, p = .82). There was, however, a significant relation between gender and the missing data cases (χ^2 = 9.34, df = 1, p = .002). A greater proportion of males (23.7%) did not complete the survey while only 8.3% of the females did not complete beyond the demographic data.

Sample size exceeded the required power and effect size for the study. However, to maximize the strengths of the research and avoid the adverse effects of an overpowered study, close attention was given to the study design. The risks associated with overpowered non-clinical studies, containing convenience samples, involved two areas of potential concern. Such a study may provide trivial significant outcomes and/or waste resources (Hanlon, 2009). To avoid trivial significance and resource waste attention was provided to research design, measures and analysis methodology. For this study deliberate attention to questionnaire items was provided to ensure relevance and pertinence of inquiry. Questionnaire construction was guided by theory, aided through review of extant literature, consultation with content experts and pilot tested with ICU nurses. In addition, the study had oversight from a statistical expert. These steps helped to avoid the hazards associated with an overpowered study. Detrimental consequences are not the only association with large samples, according to Cohen (1988) the larger the sample, given appropriateness of all other things, the smaller the error and the greater the results precision.

While exact sample size associated with factor analyses has a wide range and sometimes contradictory recommendations most researchers agree that larger samples are consistent with more stable loadings across repeated sampling (Macallum,

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Widaman, Zhang & Hong, 1999). This is a point of note given the Principal Component Factor analysis that was conducted.

Sample Characteristics

The convenience sample for this research consisted of 680 registered nurses who work with a U.S. adult critical care in-patient population and who belong to a professional organization—the American Association of Critical-Care Nurses. Sample characteristics were obtained through completion of a self-reported demographic form. The vast majority of the participants (n = 619; 91%) were female, whereas 9% (n = 61) were males. The nurses who responded tended to be skewed to the older age groups. About 40% of the nurses reported they were age 50 or older (about a third, 33.2% in the 50-59 range and 7% age 60 or older). Around a quarter of the sample (23.5%) was in the 40-49 range and almost two-thirds (63.5%) of the nurses were over the age of 40. About 20.2% of the nurses were age 30-39 and only 16% of the total sample was under 30 years of age (See Table 2).

A greater proportion of males under age 30 (28%) participated in the study than did females under age 30 (14%). In the 30-39 age range there were 18% male and 20% female participants. Similar percentages of males (28%) and females (24%) reported themselves to be In the 40-49 age group, Proportionally more females (34%) were in the 50-59 age group than males (22%) and this held true for those over 60 years of age also, (14% of females, 7% males). Thus, about two thirds (65%) of the female nurses were 40 years of age or older while a little over half (57%) of the male nurses were 40 or over.

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Table 2. Nurse Characteristics.	
	%
Certification (% Critical Care)	53.6
Race (% Caucasian)	85.5
Education	
% < Baccalaureate	20.4
% Baccalaureate	51.9
% Masters	24.7
% Doctorate	2.9
Nurse Type	
% Staff	66.3
% APN	8.7
% Manager/Educator	25.0
Policy Type	
% Not Open	54.7
% Open	45.3
Shift Worked	
% Straight Days	35.2
% Straight Nights	31.0
% Other	33.8
Hospital Size	
% < 300 Beds	34.5
% 300 – 599 Beds	44.4
% > 600 Beds	21.1

Due to the small numbers in each of the non-Caucasian racial/ethnic groups, all of the non-Caucasian categories were combined into one variable. The majority of respondents (85%; n=578) were Caucasian with 15% (n=102) reporting they were non-Caucasian.

The responding sample was also skewed toward a higher level of education. More than half (51.9%, n=352.9) of the nurses in the study were educationally prepared at the baccalaureate level while approximately a fifth (20.4%, n=138.7) held a diploma or an Associate degree. About a quarter (24.7%, n=167.9) of the nurses reported they had master's degrees and 2.9% (n=19.7) held a doctorate (PhD or DNP). These data are very similar to the educational demographic of AACN members. Fifty-seven percent (57%, n=54,150) of AACN nurses are baccalaureate prepared, 18% (n=17,100) are Masters prepared, and 1% (n=950) have doctoral degrees. Almost one quarter (24%, n=22,800) of the AACN members are prepared at the Associate degree or hospital diploma levels AACN, 2012).

Over half (53.6%, n=385) of the nurses were certified in critical care nursing. Included in the certification credentials were: adult critical care certification (48%, n=345), adult telemetry critical care certification (0.04%, n=3), adult cardiac medicine critical care certification (2%, n=12), adult progressive care certification (1.3%, n=9), and adult cardiac surgery certification (2%, n=14).

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A large number of the nurses were seasoned practitioners with half (53.5%, n=363.8) reporting critical care experience of ten years or more. About 16% (n=108.8) reported 6-10 years of experience, about a quarter (25%, n=170) had worked as an ICU nurse for 1-5 years and only 5.6% (n=38) had less than one year of experience as an ICU nurse. About two-thirds (65%, n=442) of the nurse participants worked as ICU staff nurses and about one fourth (25%, n=170) of the sample were managers or educators with a smaller number (9%, n=61.2) working as APNs. Over half (57%, n=387.6) of the overall sample reported that they spent between 60-100% of their time providing direct patient care.

About one-third (35.2%, n= 239.3) of the nurses worked straight day shifts, about another third (33.8%, n=229.8) worked straight nights, and another third (31%, n=210.8) worked other shift combinations such as day-evening shift rotations. About a third (35%, n=238) of the nurses worked in hospitals with less than 300 beds, 44% (n=299.2) in hospitals that were of moderate size (300-599 beds), and 21% (n=142.8) in larger hospitals of 600 beds or more beds. Almost two-thirds (69%, n=469.2) of the nurse respondents worked in teaching hospitals of various types with about a third (31%, n=210.8) in community non-teaching hospitals.

Predictor, Mediator, and Outcome Measures. Scale descriptives are available in Tables 3 and 4. Nurses in the sample generally felt that they had the skills and knowledge necessary to help families through difficult emotional experiences (Mean = 6.19, SD=1.05). Many nurses felt that open FP did not help patients with medical information and was not helpful for patient recovery (Mean = 4.66 and 4.73, SD = 1.72 and 1.99 respectively).

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Table 3. Scale/Item Descriptives.					
	N	Min	Max	Mean	SD
FP Predictor Measures					
Have skills/ knowledge to Help Families	603	1	7	6.19	1.05
Families help patient with medical info.	645	1	7	4.66	1.72
Open visiting good for Patient Recovery	662	1	7	4.73	1.99
Open visiting/ FP decreases Family Anxiety	626	1	7	5.26	1.59
May restrict visiting due to Space Concerns	601	1	7	5.89	1.61
Open visiting/FP increases Family Satisfaction	608	1	7	5.46	1.60
Open visiting/FP saves Nurse Time	602	1	7	5.79	1.59
FP Mediator Measures					
Positive Behavioral Belief Scale (PBBS)	645	1.50	6.89	4.75	1.21
Negative behavioral Belief Scale (NBBS)	616	1.00	7.00	4.85	1.32
FP Outcome Measures					
Restrictive Intent Scale (RIS)	597	1.00	7.00	4.23	1.55
Positive Intent Scale (PIS)	598	1.00	7.00	4.96	1.65
Prior Non-Restrictive FP Decisions	613	1	7	6.23	1.32
Restrictive FP	601	1	7	5.30	2.07
Open Visitation Index Score	630	1.00	7.00	5.00	1.77

Almost two-thirds of the sample (61.5%) indicated that open family visitation was good for patient recovery and 60.3% agreed that family presence helped patients understand medical information. Three-fourths of the nurses agreed that there should be some limits on visitation (75.4%) but indicated they had allowed open family visiting on occasion in the past (92%). Most nurses agreed that open FP reduced family anxiety (75.4%) and increased family satisfaction (77.5%), but they also indicated that open

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Table 4. Scale/Descriptives.	N	%
Open visiting good for patient recovery	662	61.5
Families help patient with medical info.	645	60.3
Should be some limits on visitation	605	75.4
Allowed open visiting in the past	617	92
Open visiting reduced family anxiety	626	75.4
Open FP increased family satisfaction	608	77.5
Open FP increased nurse time	602	86.4
Open FP increased patient satisfaction	659	70.2
Information from family improves quality	661	90.5
Open FP has positive effect on family	646	80.4
Open FP has positive effect on patients	610	67.5

FP increased nurse time requirements with the patient and family (86.4%). Importantly 59.4% (n=374) of nurses do not routinely allow open visitation and in response to the question what percent of time would you like to allow open FP, a majority (45.3%, n=326) of nurse respondents identified a desire to allow open visitation 59 – 74% of the time.

Statistical Analyses By Hypotheses

HYPOTHESIS 1a: Older nurses are more positive than younger nurses toward unrestricted FP decisions and intent. (SUPPORTED)

Analysis examining the impact of age on unrestricted FP did identify an age effect in the hypothesized direction. The hypothesis was tested using Spearman Rho Correlation and measurement outcomes from the Restrictive Intent Scale (RIS), the Positive Intent Scale (PIS), the Prior Non-Restrictive FP Decisions, Restrictive FP, and Open Visitation Index Score (see Table 5). Significant relations were identified for

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Table 5. Relation between Outcome Measures and Age Group.		
Restrictive Intent Scale (RIS)	r_s	-.191
	p	<.001
	N	596
Positive Intent Scale (PIS)	r_s	.113
	p	.006
	N	597
Prior Non-Restrictive FP Decisions	r_s	.197
	p	<.001
	N	612
Restrictive FP	r_s	-.224
	p	<.001
	N	600
Open Visitation Index Score	r_s	.216
	p	<.001
	N	629

Restrictive Intent Scale (r_s = -.191, p<0.001), Positive Intent Scale (r_s =.113, p<0.006), Prior Non-Restrictive FP Decisions (r_s=.197, p<0.001), the Restrictive FP item (r_s=-.224, p<0.001), and the Open Visitation Index Score (r_s=.216, p<0.001). Thus, the results not only revealed that older nurses had made and planned to make less restricted FP decisions, the findings also identified that the older the nurses, the less they agreed that there should be limits on FP. In response to patient requests a greater proportion of nurses (72.2%, n=282.9) age 40 and older were willing to allow open visitation even if it was not usual policy compared to the proportion (27%, n=56.1) of nurses under the age of 40.

Table 6. Relation between Predictors/Mediators and Age Group.		
FP Predictors Measures		
Have skills/ knowledge to Help Families	r_s	.328
	p	< .001
	N	602
Families help patient with medical info.	r_s	.238
	p	<.001
	N	644
Open visiting good for Patient Recovery	r_s	.239
	p	< .001
	N	661
Open visiting/ FP decreases Family Anxiety	r_s	.210
	p	<.001
	N	625
May restrict visiting due to Space Concerns	r_s	-.148
	p	<.001
	N	600
Open visiting/FP increases Family Satisfaction	r_s	.141
	p	<.001
	N	607
Perception of FP on Nurse Time	r_s	-.073
	p	.074
	N	601
FP Mediator Measures		
Positive Behavioral Belief Scale (PBBS)	r_s	.218
	p	<.001
	N	644
Negative behavioral Belief Scale (NBBS)	r_s	-.230
	p	<.001
	N	615

Additionally, (as depicted in Table 6) as the nurses' age increased, they were significantly more likely to agree that they had

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the skill and knowledge to help family members through emotional reactions to patient conditions (r_s=.328, p<.001), that family members can help patients with medical information (r_s=.238, p<.001), that open visiting in ICUs is good for patient recovery and healing (r_s=.239, p<.001), decreases family anxiety (r_s=.210, p,.001), and increases family satisfaction (r_s=.141, p=.001). The older the nurse, they were significantly less likely to report that the amount of space available caused them to restrict the number of visitors (r_s= -.141, p=.001).

There was also a significant correlation between the age of the nurse and the Positive Behavioral Belief Scale (r_s=.218, p<.001) and a significant negative correlation between age and the Negative Behavioral Belief Scale (r_s=-.230, p=.001). These findings indicate that the older nurses reported more positive beliefs about open visiting/family presence and less negative beliefs about open visiting/family presence (See Table 6).

Regression analysis was also conducted to examine this hypothesis. The analysis was undertaken to assess how much variation in the outcome variables was accounted (predicted by) for by the predictors while controlling for education related

Table 7. Relations between Predictors/Outcome Measures

	PIS		RIS		PDMS(#35)		#56	
Models	Beta	Adj. R^2	Beta	Adj. R^2	Beta	Adj. R^2	Beta	Adj. R^2
1 Education	.164**	.025**	-.258**	.065**	.099*	.008*	-.251**	.061**
2 Education	.157**		-.243**		.083*		-.232**	
Age	.083*	.031*	-.180**	.096**	.173**	.036**	-.210**	.104**

*P<.05, **P<.001

to FP intentions and decisions. The outcome variables used in this analysis were RIS, PIS, AICUQ #35 and #56. The hypothesis was supported however, education accounted for more variance than age in all outcome variables except AICUQ#35.

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Findings revealed low R-square scores for PIS(R^2 =.027, F=44.122, p<.001) and AICUQ#35(R^2 =.008, F=6.64, p=.014) and identified the amount of variation accounted for in each of the outcome variables by the predictors. R-square results were only slightly better in RIS (R^2 =.065, F=42.555, p<.001) and AICU#56(R^2 =.063, F=40.507, p<.001). All results were significant. The standardized beta coefficients identified negative directions related to education and age for RIS and AICUQ#56. (see table 7) In practice the results indicated that the higher the level of education and age of the nurses the less the nurses believed that families should be asked to leave when patient conditions suddenly deteriorated or procedures had to be done. Similarly the older and more highly educated the nurses the less they believed limits should be placed on family ICU visitation.

HYPOTHESIS 1b: Male nurses are more positive toward unrestricted FP than female nurses (REJECTED)

Analysis examining the impact of gender on unrestricted FP identified only a trend toward a gender effect for unrestricted FP on the five main outcomes measures.

Table 8. Outcome Measures X Gender.

	Gender	N	Mean	SD	t	p
Restrictive Intent Scale (RIS)	Male	54	4.3765	1.66	0.70	.484
	Female	540	4.2210	1.54		
Positive Intent Scale (PIS)	Male	53	4.9057	1.70	-0.28	.782
	Female	542	4.9714	1.64		
Prior Non-Restrictive FP Decisions	Male	54	6.15	1.52	-0.46	.649
	Female	556	6.23	1.30		
Restrictive FP	Male	54	5.76	1.89	1.71	.088
	Female	544	5.25	2.09		
Open Visitation Index Score	Male	55	4.7636	2.01	-1.04	.300
	Female	572	5.0236	1.75		

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Only the Restrictive FP item (t = 1.71, df = 596, p=.008) showed a possible gender difference with the male nurses agreeing that there should be visitation restrictions more than the female nurses (male mean = 5.76, female mean = 5.25). It is important to note that there is a power issue. There are far fewer male than female study participants (male N =59; female N = 617). This resulted in an increased possibility of a Type II error (see Table 8).

Results contrary to the hypothesis were identified using t-test analysis of specific

Table 9. Predictor/ Mediator Measures X Gender.

	Gender	N	Mean	SD	t	p
FP Predictor Measures						
Have skills/ knowledge to Help Families	Male	54	5.83	1.27	-2.61	.009
	Female	546	6.22	1.02		
Families help patient with medical info.	Male	56	3.80	1.95	-3.91	<.001
	Female	586	4.74	1.68		
Open visiting good for Patient Recovery	Male	57	4.12	2.41	-2.39	.017
	Female	602	4.78	1.95		
Open visiting/ FP decreases Family Anxiety	Male	55	4.91	1.85	-1.69	.092
	Female	568	5.29	1.56		
May restrict visiting due to Space Concerns	Male	54	5.93	1.60	0.21	.838
	Female	544	5.88	1.62		
Open visiting/FP increases Family Satisfaction	Male	54	4.91	1.80	-2.64	.009
	Female	551	5.51	1.58		
Perception of FP on Nurse Time	Male	54	5.76	1.45	-0.14	.889
	Female	545	5.79	1.60		
FP Mediator Measures						
Positive Behavioral Belief Scale (PBBS)	Male	55	4.3544	1.47	-2.57	.011
	Female	587	4.7894	1.17		
Negative behavioral Belief Scale (NBBS)	Male	55	5.1007	1.36	1.48	.139
	Female	558	4.8249	1.31		

items. Females were significantly more likely to believe that they had the skill and knowledge to help family members through emotional reactions to patient conditions/event (t = -2.61, p =.009), that family members were able to assist patients

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regarding medical information (t=-3.91, p<.001), that open visiting in ICUs is good for patient recovery and healing, (t=-2.39, p=.017) and increases family satisfaction (t= -2.64, p=.009). The female nurses also reported higher Positive Behavioral Belief Scale scores (t=-2.57, p=.011). There was no gender difference on the Negative Behavioral Belief Scale. Both males and females report similar beliefs about limiting visitors when there is insufficient space and about visitors requiring increased nurse time. Therefore, contrary to the hypothesis, overall, female ICU nurses reported being more positive toward FP than male ICU nurses (see Table 9).

A one-way analysis of covariance was initiated to determine whether there were differences in the variance contribution of gender after controlling for education related to four of the five outcome variables (RIS, PIS, AICUQ#35 and #56). The power issue related to the size of the sample of males interfered with the completion of the preliminary checks for assumption violations. All of the "tests of between-subjects effects" were non-significantly related to gender and none of the variation in the outcome variables was explained by gender. Education on the other hand had significant relations related to all outcome variables and accounted for a range of 1.0% to 6.9% of the variance related in the outcome variables related to FP.

HYPOTHESIS 1c: Non-Caucasian nurses are more positive towards unrestricted FP than Caucasian nurses. (REJECTED)

To identify which racial groups, non-Caucasian or Caucasian nurses, are more positive toward unrestricted FP, independent t-tests were utilized. Although the variances between the groups were significantly different for the Restrictive FP Scale,

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based on the Levine's Test for Equality of Variances (t=4.302, p<.001), the independent t-test evaluating the relation between race group and FP intention was significant for both the pooled (equal variances assumed) and non-pooled tests (equal variances not assumed). Thus, the pooled t-statistic was used.

Table 10. Outcome Measures X Race.

	Race Group	N	Mean	SD	t	p
Restrictive Intent Scale (RIS)	Non-Caucasian	80	4.56	1.55	2.113	.035
	Caucasian	513	4.17	1.54		
Positive Intent Scale (PIS)	Non-Caucasian	79	4.85	1.78	-0.692	.489
	Caucasian	515	4.99	1.63		
Prior Non-Restrictive FP Decisions	Non-Caucasian	82	6.00	1.47	-1.701	.089
	Caucasian	527	6.27	1.29		
Restrictive FP	Non-Caucasian	80	6.00	1.48	3.303	.001
	Caucasian	517	5.18	2.13		
Open Visitation Index Score	Non-Caucasian	83	4.81	1.71	-1.055	.292
	Caucasian	543	5.03	1.79		

Among the five FP outcome measures, the Restrictive Intent Scale (t= 2.113, p=.035) and the Restrictive Family Presence Scale (t = 3.303, p=.001) were statistically significant. For both of these measures the Caucasian nurses reported less restrictive intent (non-Caucasian mean= 4.56; Caucasian mean = 4.17) and expressed less belief that visitation should be restricted (non-Caucasian mean = 6.00, Caucasian mean = 5.18) (see Table 10). Therefore, contrary to the hypothesis, which was rejected, Caucasian nurses expressed more positive beliefs about family presence than non-Caucasian nurses.

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Table 11. Predictor, & Mediator Measures X Race Group.						
	Race	N	Mean	SD	t	p
FP Predictor Measures						
Have skills/ knowledge to Help Families	Non-Caucasian	54	6.15	1.14	-.40	.690
	Caucasian	546	6.20	1.04		
Families help patient with medical info.	Non-Caucasian	56	4.47	1.80	-1.21	.228
	Caucasian	586	4.70	1.70		
Open visiting good for Patient Recovery	Non-Caucasian	57	4.79	1.84	.23	.819
	Caucasian	602	4.74	2.01		
Open visiting/ FP decreases Family Anxiety	Non-Caucasian	55	5.30	1.53	.23	.816
	Caucasian	568	5.26	1.60		
May restrict visiting due to Space Concerns	Non-Caucasian	54	5.99	1.60	.61	.540
	Caucasian	544	5.87	1.62		
Open visiting/FP increases Family Satisfaction	Non-Caucasian	54	5.56	1.52	.61	.548
	Caucasian	551	5.45	1.62		
Open visiting/FP saves Nurse Time	Non-Caucasian	54	5.73	1.68	-.36	.721
	Caucasian	545	5.79	1.58		
FP Mediator Measures						
Positive Behavioral Belief Scale (PBBS)	Non-Caucasian	55	4.85	1.11	.77	.443
	Caucasian	587	4.75	1.22		
Negative Behavioral Belief Scale (NBBS)	Non-Caucasian	55	5.07	1.14	1.67	.095
	Caucasian	558	4.81	1.34		

Results of all t-test pertaining to the race-related predictor measures did not support the hypothesis. All findings were non-significant, including those related to the Positive and Negative Behavioral Belied Scales (Non-Caucasian mean = 4.56, Caucasian mean = 4.16). Non-Caucasian nurses scores did not identify a more positive approach toward FP than Caucasian nurse scores. It is important to acknowledge that there are fewer Non-Caucasian nurse respondents than Caucasian (Caucasian = 516, Non-Caucasian = 81). Similar to the statistics related to gender, this circumstance increased the potential of a Type II error.

HYPOTHESIS 1d: Nurses with higher levels of education are more positive towards unrestricted FP than less educationally prepared nurses. (SUPPORTED)

To assess the impact of education on FP, Spearman Rho Correlations were computed for all five outcome variables; the Restrictive Intent Scale (RIS), the Positive

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Intent Scale (PIS), the Prior Non-Restrictive FP Decisions, Restrictive FP, and Open Visitation Index Score. All outcome variables were significantly related to education level. All results were in the direction supporting less restrictive family presence and more positive decision-making and FP intent, with both the Restrictive Intent Scale and Restrictive FP measures (rs = -.255, p<0.001) and (rs= -.278, p<0.001) respectively, the higher the educational level of the nurses, the less likely they are to restrict families during sudden deterioration of patient conditions, such as a code or other bedside treatments. The Positive Intent Scale, ($r_{s=}$ .165, p<0.001), Prior Non-Restrictive Decision Scale (r_s=.124, p<0.002) and Open Visitation Index Score (r_s=.240, p<0.001) are measures of past and future behavior. The higher the education, the more likely they are to have engaged in less restrictive FP behavior in the past and the less restrictive they intend to be in the future FP (see Table 12). The results support the hypothesis that nurses with higher education levels is more positive about family presence.

Table 12. Relation between Outcome Measures and Education Group.

Restrictive Intent Scale (RIS)	r_s	-.255
	p	<.001
	N	597
Positive Intent Scale (PIS)	r_s	.165
	p	<.001
	N	598
Prior Non-Restrictive FP Decisions	r_s	.124
	p	.002
	N	613
Restrictive FP	r_s	-.278
	p	<.001
	N	601
Open Visitation Index Score	r_s	.240
	p	<.001
	N	630

Spearman Rho correlation analyses were also used to examine the impact of education levels on FP behaviors. Significant relations were identified for all seven outcome predictor measures and education except nurses believing that they had the requisite knowledge and skills to help families through emotional upheaval or change in their loved one's condition. The higher the level of the nurse's education the more likely

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Table 13. Relation between Outcome Measures and Education Group.		
Families help patient with medical info.	r_s	.242
	p	.000
	N	645
Open visiting/ FP decreases Family Anxiety	r_s	.212
	p	.000
	N	626
Open visiting/FP saves Nurse Time	r_s	.266
	p	.000
	N	611
Open visiting/FP increases Family Satisfaction	r_s	.183
	p	.000
	N	608
Have skills/ knowledge to Help Families	r_s	.074
	p	.071
	N	603
May restrict visiting due to Space Concerns	r_s	-.150
	p	.000
	N	601
Increased nurse time	r_s	-.185
	p	.000
	N	602
Open visiting good for Patient Recovery	r_s	.256
	p	.000
	N	662

they were to believe that the presence of family at the bedside helped patients understand medical information (r_s =.242, p<0.001), decreased family anxiety, increased satisfaction (r_s=.212, p<0.001, r_s=.183, p<0.001), and was good for patient recovery and healing (r_s=.256, p<0.00). Nurses with higher levels of education acknowledged the increasing impact of open visiting on nurse time and unit space concerns (r_s= -.185, p<0.001, r_s = -.150, p<0.001) while readily admitting that open visiting for patients also saved some nurse time. (see Table 13).

Interestingly, results of a crosstab related to nurse age, education and certification, revealed that 40% of nurses younger than 49 years of age had masters degrees, doctorates and specialty certification. This result compares to 61% of nurses

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Table 14. Certification * Education Level	Age				Total
CCRN	**< 30**	**30-49**	**40-49**	**50-60+**	
Diploma/Associate Degree	3	13	8	30	54
Bachelor Degree	27	38	49	62	176
MS/PhD/DNP	3(3%)	13(11%)	29(25%)	69(61%)	114
noCCRN					
Diploma/Associate Degree	11	20	24	38	93
Bachelor Degree	64	42	44	50	200
MS/PhD/DNP	4(5%)	18(23%)	20(25%)	37(47%)	79

who were 50 years old or older with advanced degrees and certification. (see Table 14).

HYPOTHESIS 1e: Critical care certified nurses are more positive towards unrestricted FP than non-critical care certified nurses (SUPPORTED).

To examine the relation between nurse critical care certification and FP intent and decision-making, independent t-tests were utilized. Although the variances between the groups were significantly different for the Restrictive FP Scale based on the Levine's

Table 15. Outcome Measures X Nurse Certification.						
	Certification Group	N	Mean	SD	t	p
Restrictive Intent Scale (RIS)	No Certification	271	4.49	1.50	3.609	<.001
	Certification	317	4.03	1.55		
Positive Intent Scale (PIS)	No Certification	271	4.85	1.63	-1.513	.131
	Certification	318	5.06	1.68		
Prior Non-Restrictive FP Decisions	No Certification	276	6.10	1.34	-2.200	.028
	Certification	327	6.34	1.28		
Restrictive FP	No Certification	274	5.68	1.91	3.917	<.001
	Certification	318	5.02	2.15		
Open Visitation Index Score	No Certification	285	4.74	1.79	-3.292	.001
	Certification	335	5.21	1.73		

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Test for Equality of Variances (t=7.861, p=005), the independent t-test was significant for both the pooled (equal variances assumed) and non-pooled tests (equal variances not assumed). Thus, the pooled t-statistic was used.

Analyses revealed that four out of the five FP outcome measures showed significant results in the hypothesized direction. Independent t-test results identified that certified nurses showed less restrictive intent (t= 3.609, p <.001), increased prior non-restrictive decisions (t= -2.200, p=.028), less restrictive FP limits (t = 3.917, p <.001) and a higher Open Visitation Index Score (t = -3.292, p <.001). There was no relation between nurse certification and the Positive Intent Scale (t = -1.51, p = 131) (see Table 15).

Not only did certified nurses differ on FP outcome measures, there were significant differences between the certified and non-certified nurses on predictor measures and on both the Positive and Negative Beliefs Scales. Certified nurses believed they had more knowledge and skills to assist families with emotional difficulties (t = -3.40, p=.001) and that FP helped with patient recovery (t = -4.41, p < .001). There was a trend toward certified nurses reporting more belief in families assisting patients with medical information (t = -1.76, p=.080), certified staff nurses believed that open FP reduced family anxiety (t =-2.80, p=.005) and increased family satisfaction (t = -2.35, p=.019) significantly more than non-certified nurses. Finally, critical care certified nurses reported fewer negative open FP beliefs (t = -4.00, p < .001) and more positive open FP beliefs than non-critical care certified nurses (t = 4.07, p < .001). Thus, the analysis showed support for the hypothesis that certified critical nurses show more positive views toward family presence than non-certified nurses (see Table 16).

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Table 16. Predictor, & Mediator Measures X Staff Certification Group.

	Certification Group	N	Mean	SD	t	p
FP Predictor Measures						
Have skills/ knowledge to Help Families	No Certification	54	6.03	1.09	-3.40	.001
	Certification	546	6.32	1.00		
Families help patient with medical info.	No Certification	56	4.52	1.68	-1.76	.080
	Certification	586	4.76	1.75		
Open visiting good for Patient Recovery	No Certification	57	4.34	1.99	-4.41	<.001
	Certification	602	5.03	1.95		
Open visiting/ FP decreases Family Anxiety	No Certification	55	5.05	1.60	-2.80	.005
	Certification	568	5.41	1.57		
May restrict visiting due to Space Concerns	No Certification	54	5.96	1.60	.96	.338
	Certification	544	5.83	1.63		
Open visiting/FP increases Family Satisfaction	No Certification	54	5.28	1.62	-2.35	.019
	Certification	551	5.59	1.59		
Open visiting/FP saves Nurse Time	No Certification	54	5.84	1.65	.65	.519
	Certification	545	5.76	1.53		
FP Mediator Measures						
Positive Behavioral Belief Scale (PBBS)	No Certification	55	4.54	1.20	-4.00	<.001
	Certification	587	4.92	1.19		
Negative Behavioral Belief Scale (NBBS)	No Certification	55	5.10	1.26	4.07	<.001
	Certification	558	4.67	1.34		

HYPOTHESIS 2a: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will partially mediate the relation between age and nurse-reported FP intentions and decisions (SUPPORTED).

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between nurse age and nurse-reported FP intention and decisions. In the analyses evaluating mediation, the age was entered in the first step ($p<0.05$ to enter, $p<0.10$ to remove) followed by the positive and negative beliefs scales in the second step. Results of the regression analysis supported the hypothesis.

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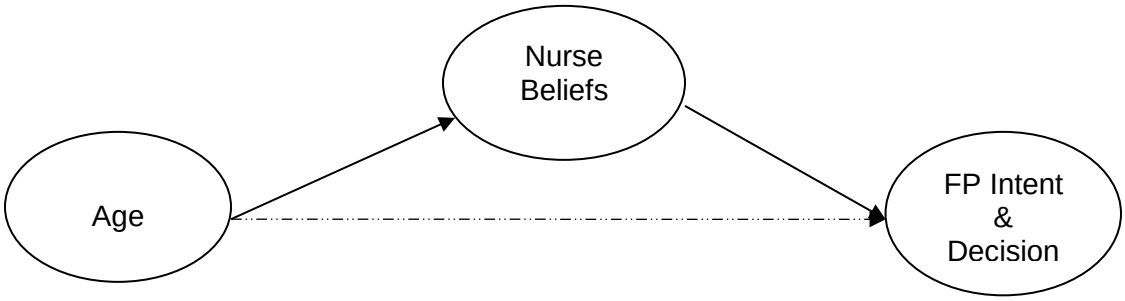
Table 17. Mediation Analyses: Nurse Beliefs & Age.				
	Model 1		Model 2	
	β	p	β	p
Restrictive Intent Scale (RIS)	-.20	<.001	-.06	.072
Positive Intent Scale (PIS)	.10	.017	-.02	.522
Prior Non-Restrictive FP Decisions	.18	<.001	.10	.011
Restrictive FP	-.23	<.001	-.05	.072
Open Visitation Index Score	.20	<.001	.05	.114

Both positive and negative beliefs fully mediated the relation between age and FP for the Positive Intent Scale and the Open Visitation Index Score. Nurse beliefs significantly and positively influenced the amount of variance accounted for in the outcome variables by the predictors. The largest amount of variance was identified in the AICUQ#56 (R^2 =.565, F=362.710, *p*<.001) with the next largest amount identified in PIS (R^2 =.272, F=103.550, p<.001), with remaining amounts as RIS (R^2 =.356, F=154.197, p=<.001), and Prior Non-Restrictive FP Decisions (R^2 =.162, F=53.833, p<.001).



HYPOTHESIS 2b: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will partially mediate the relation between non-Caucasian nurses and nurse reported FP intentions and decisions (REJECTED).

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between nurse race group and nurse-reported FP intention and decisions. In the analyses evaluating mediation, race group was entered

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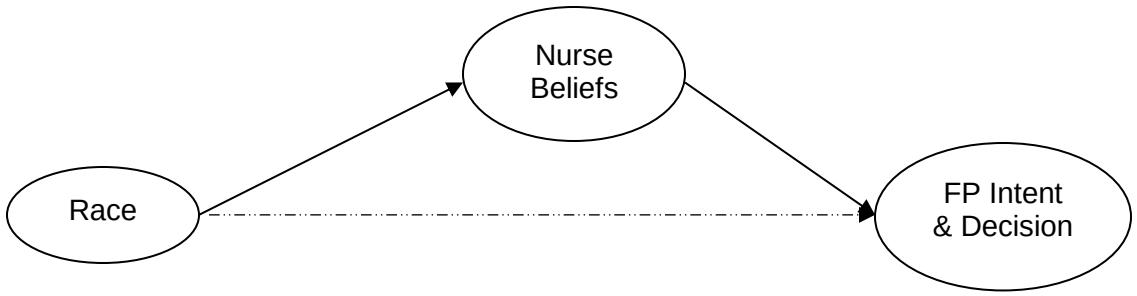
in the first step (p<0.05 to enter, p<0.10 to remove) followed by the positive and negative beliefs scales in the second step.

Table 18. Mediation Analyses: Nurse Beliefs & Race Group.

	Model 1		Model 2	
	β	p	β	p
Restrictive Intent Scale (RIS)	-.09	.035	-.05	.112
Positive Intent Scale (PIS)	.028	.489	.035	.327
Prior Non-Restrictive FP Decisions	.07	.084	.08	.031
Restrictive FP	-.14	.001	-.10	.001
Open Visitation Index Score	.034	.397	.034	.282

Results of these regressions did not support the hypothesis that positive and negative nurse beliefs mediated the relation between race group and FP intention and decisions (see Table 16). Mediation was only evident in the Restrictive Intent Scale (RIS). There was no mediation identified in the other four FP intention and decisions scales. Therefore, the preponderance of evidence was in the negative direction, thus the hypothesis was rejected. Thirty five percent (R^2 =.353, F=151.247, *p*=.099) of the variance was accounted for by beliefs related to RIS and race did not add substantively nor significantly to the explained variance.



HYPOTHESIS 2c: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale will partially mediate the relation between gender and nurse-reported intentions and decisions regarding FP (REJECTED).

This hypothesis will not be examined since there was no relation between gender and FP intention and decision. To conduct mediation requires that the

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dependent variable (five outcome variables) be regressed on the independent variable (gender). If this step does not result in significant relations there is no relation to mediate and therefore, the mediation process is halted at the first step (Polit, 2010).

HYPOTHESIS 2d: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will partially mediate the relation between education and nurse-reported intentions and decisions regarding FP (SUPPORTED)

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between nurse race group and nurse-reported FP

Table 19. Mediation Analyses: Nurse Beliefs & Education Group.

	Model 1		Model 2	
	β	p	β	p
Restrictive Intent Scale (RIS)	-.27	<.001	-.09	.010
Positive Intent Scale (PIS)	.17	<.001	.02	.662
Prior Non-Restrictive FP Decisions	.10	.013	-.01	.873
Restrictive FP	-.26	<.001	-.02	.445
Open Visitation Index Score	.21	<.001	.02	.570

intention and decisions. In the analyses evaluating mediation, education was entered in the first step ($p<0.05$ to enter, $p<0.10$ to remove) followed by the positive and negative beliefs scales in the second step.

Results of the regression analysis supported the hypothesis. Positive and negative nurse beliefs fully mediated the relation between level of education and FP for all scales with the exception of the RIS scale (see Table 17). However, education level did partially mediate the relation between RIS and FP intention and decision. Therefore, the impact of education level on less restrictive FP is through the influence of positive and negative nurse beliefs about family presence. Once again nurse beliefs

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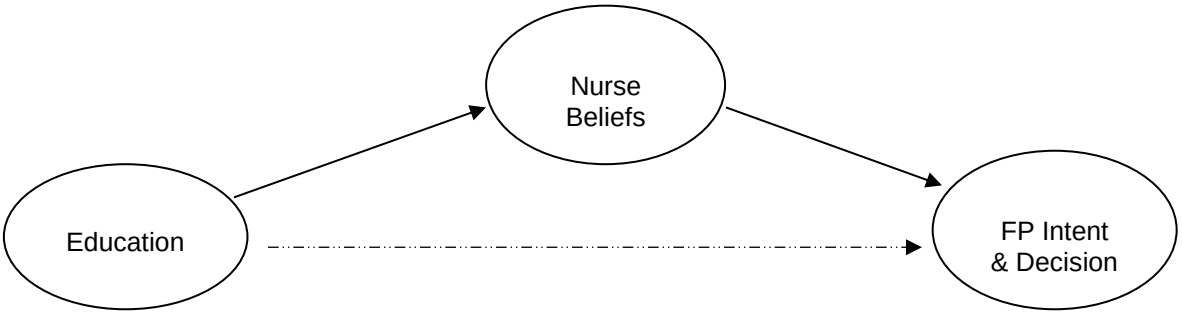

significantly and positively influenced all outcome variables. Variance that was explained ranged from a low of 16% (R^2 = .q60, F=53.322, p<.001) in the Prior Non-Restrictive Decision FP variable to a high of 56% (R^2 = .565, F=364.080, p<.001) in the AICUQ#56 variable. Beliefs accounted for 27.1% (R^2 =.271, F=103.316, p=<.001) of the PIS variance and 35.8% (R^2 =..358, F=155.683, p<.001) of the RIS variance. Beta coefficients identified negative relations between education and the RIS, AICUQ#35, and AICUQ#56 outcome variables. As level of education increased perceived requests for families to leave the unit if the patient's condition worsened, past decisions allowing open visitation and thoughts of limits on visitation, decreased.

Hypothesis 2e: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will partially mediate the relation between certification and nurse-reported FP intentions and decisions (SUPPORTED).

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between nurse critical care certification and nurse-reported FP intention and decisions. In the analyses evaluating mediation, critical care nurse certification was entered in the first step (p<0.05 to enter, p<0.10 to remove) followed by the positive and negative beliefs scales in the second step.

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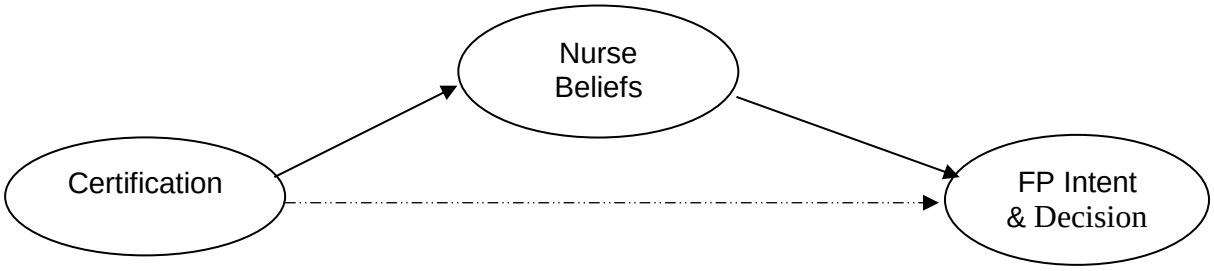
Results of the regression analysis supported the hypothesis. Positive and negative nurse beliefs fully mediated the relation between nurse certification and FP for all scales with the exception of the PIS scale (see Table 20). There was no relation between PIS and critical care certification.

Table 20. Mediation Analyses: Nurse Beliefs & Nurse Critical Care Certification.

	Model 1		Model 2	
	β	p	β	p
Restrictive Intent Scale (RIS)	-.15	<.001	-.05	.161
Positive Intent Scale (PIS)	.06	.131	-.02	.498
Prior Non-Restrictive FP Decisions	.09	.024	.034	.374
Restrictive FP	-.16	<.001	-.03	.277
Open Visitation Index Score	.15	<.001	.05	.162

Results support the influence of beliefs on the relation between certification and FP decisions. Beliefs account for much more of the variance in each outcome variable than does the variance contribution added by certification. Results of R-square computations reflected variance contributions related to outcome variables by predictors that ranged from 16% (R^2 =16, F=53.322, p<.001) in the PDMS (AICUQ#35) to 56% in the AICUQ #56. Perceived nurse FP behaviors reported by critical care certified nurses compared to those with no certification support this analysis. Significant crosstab results revealed that 46% of nurses without critical care certification strongly disagreed that there should be limits on ICU visitation compared to 54% certified nurses who strongly disagreed. Similarly 46% and 32% of nurses without certification compared to 54% and 68% of nurses with certification moderately and mildly disagreed respectively, that there should be limits on visitation.



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HYPOTHESIS 3A: Past experiences as an ICU patient or family member will be positively associated with nurse-reported intentions and decisions regarding unrestricted FP in adult ICUs (PARTIALLY SUPPORTED).

This hypothesis was tested using Spearman's Rho analyses. Experience as an ICU patient or family member was significantly related solely to the Open Visitation Index (r_s= .121, p = .002). The more experience being a patient or family member, the more likely a nurse is to allow open FP visitation. There was no relation between past experiences as an ICU patient or family member and the other four FP outcome measures (see Table 21).

Table 21. Relation between Outcome Measures and Past Personal ICU experience.

Restrictive Intent Scale (RIS)	r_s	.048
	p	.245
	N	597
Positive Intent Scale (PIS)	r_s	.058
	p	.156
	N	598
Prior Non-Restrictive FP Decisions	r_s	.054
	p	.183
	N	613
Restrictive FP	r_s	.018
	p	.654
	N	601
Open Visitation Index Score	r_s	.121
	p	.002
	N	630

HYPOTHESIS 3b: Increased knowledge and skills regarding care of families will be positively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between knowledge and skills regarding care of families and FP intent and decisions, Spearman Rho Correlations were computed for all five

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Table 22. Relation between Outcome Measures and Knowledge to Assist Families.		
Restrictive Intent Scale (RIS)	r_s	-.179
	p	.000
	N	597
Positive Intent Scale (PIS)	r_s	.145
	p	.000
	N	598
Prior Non-Restrictive FP Decisions	r_s	.246
	p	.000
	N	599
Restrictive FP	r_s	-.148
	p	.000
	N	600
Open Visitation Index Score	r_s	.164
	p	.000
	N	602

outcomes variables. All outcome variables were significantly related to perception of knowledge and skills regarding care of families. All results were in the direction supporting less restrictive family presence and more positive decision-making and FP intent with increased nurse's perception of his/her own knowledge and skills to support families (see Table 22). Findings were further supported by the result that 94.7% of nurses agreed that they have the requisite skills and knowledge to care for families and 92.1% of nurses reported having previously made decisions to allow open visitation.

HYPOTHESIS 4a: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will fully mediate the relation between past experiences and nurse-reported intentions and decisions regarding FP (REJECTED).

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between past experience and nurse-reported FP intention and decisions. Since the only outcome significant in the analysis evaluating the relation between past experience and FP was the open visitation index (see Hypothesis 3a) this will be the only mediation analysis examined. In this analysis, personal experience was entered in the first step ($p<0.05$ to enter, $p<0.10$ to remove) followed by the positive and negative beliefs scales in the second step.

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The results did not support the hypothesis that positive and negative nurse beliefs mediated the relation between past personal experience and FP (Model 1 β -.13, p=.001; Model 2 β = .13, p=.001).

In exploration, a regression analysis controlling for age related to 3 of the outcome variables (RIS, PIS and AICUQ#56) was conducted. For RIS the model explained 3.9% of the RIS variance which was revealed to be statistically significant, (F=23.951, p<.001). Examination of the betas identified that the individual predictors age (Beta= -.160, p<.001) and past experience (-.216, p<.001) were significant predictors of past experience of families being asked to leave for patient condition changes. The model explained only 1% of the PIS variance which was statistically significant (F=6.171, p=.013) and 5.4% of the AICUQ#56 variance which was also statistically significant (F=33.808, p<.001). The individual contribution for age was non-significant however past experience was a significant (Bets=.350, p=<.001) predictor of whether there should be limits on visitation and if requested by physicians or patients, families would be allowed open visitation.

HYPOTHESIS 4b: The Positive Behavioral Belief Scale and the Negative Behavioral Belief Scale scores will partially mediate the relation between knowledge and skills regarding care of families and nurse-reported intentions and decisions regarding FP (SUPPORTED).

Regression was used to evaluate the mediation of positive and negative nurse beliefs on the impact of the relation between knowledge and skills to assist families and nurse-reported FP intention and decisions. In the analyses evaluating mediation, the knowledge and skill to assist families item was entered in the first step (p<0.05 to enter,

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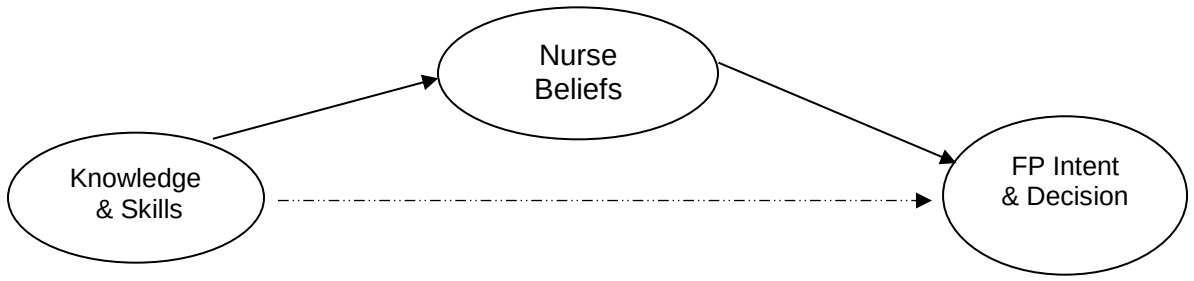
p<0.10 to remove) followed by the positive and negative beliefs scales in the second step.

Results of the regression analysis supported the hypothesis. Positive and negative nurse beliefs fully mediated the relation between nurse knowledge and skills to assist families for three of the five nurse FP intention and decisions: the Positive Intent Scale, Restrictive FP limits, and the Open Visitation Index (see Table 23). In addition, nurse beliefs partially mediated the relation between knowledge and skills to assist families and the Restrictive Intent Scale. The relation between prior non-restrictive decisions and FP intention was not impacted by adding nurse-reported knowledge and skills to assist families. A negative relation was revealed related to RIS and nurse perceptions of knowledge and skills to help family members through emotional patient events. The more knowledgeable nurses feel the less they believe that families should be asked to leave when the patient codes or experiences a sudden condition deterioration.

Table 23. Mediation Analyses: Nurse Beliefs & Knowledge and Skills.

	Model 1		Model 2	
	β	p	β	p
Restrictive Intent Scale (RIS)	-.19	<.001	-.08	.018
Positive Intent Scale (PIS)	.13	.001	.05	.171
Prior Non-Restrictive FP Decisions	.18	<.001	.13	.001
Restrictive FP	-.18	<.001	-.04	.151
Open Visitation Index Score	.12	.003	.01	.696



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The models explained 16%, 27%, 56% and 36% of the variances of AICU#35- past decisions made, PIS-allowing visitation when requested by physician or patient, AICUQ#56- whether limits should be on visitation, and RIS-families should be asked to leave for patient condition changes, respectively. Each was statistically significant (R^2 =.16(F=53.322, p<.001), (R^2 =.271(103.316, p<.001), (R^2 =.565(F=364.080, p<.001), (R^2 =.358(F=155.683, p<.001).

HYPOTHESIS 5a: Nurse perceptions that open visitation reduces medication errors will be positively associated with nurse-reported intentions and decisions regarding FP in adult ICUs (SUPPORTED).

To assess the relation between nurse perception of reduced medication errors on FP intent and decisions, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to nurse perceptions that open visitation helps to reduce medication errors. All results were in the direction supporting less restrictive family presence and more positive decision-making and FP intent with increased perception of open visiting reducing medication errors (see Table 24).

Table 24. Relation between Outcome Measures and Nurse Perception of Medication Errors.

Restrictive Intent Scale (RIS)	r_s	-.372
	p	.000
	N	596
Positive Intent Scale (PIS)	r_s	.425
	p	.000
	N	597
Prior Non-Restrictive FP Decisions	r_s	.279
	p	.000
	N	612
Restrictive FP	r_s	-.514
	p	.000
	N	599
Open Visitation Index Score	r_s	.471
	p	.000
	N	627

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, medication reduction

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after controlling for improvement in quality of care related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 11.3% of the RIS variance which was revealed to be statistically significant, ($F=75.616$, $p<.001$). Examination of the betas identified that the individual predictors, quality of care (-.196, $p<.001$) and medication errors (-.296, $p<.001$) were significant predictors for families being asked to leave because of patient condition changes, codes or procedures. Both relations were negative therefore, the more medication errors and the lower the quality of care the less nurses would think families should leave for codes, procedures or condition changes.

The model explained only 8% of the AICUQ#35 variance which was statistically significant ($F=54.110$, $p<.001$), 13.6% ($F=94.179$, $p<.001$) of the AICUQ#56 variance and 20% ($F=74.507$, $p<.001$) of PIS. All three were also statistically significant. Individual contributions for quality of care and medication errors were significant related to predictions in all remaining outcome variables. However relations for the AICUQ#56 was negative, indicating that the more medication errors and unsatisfactory quality of care there was the less nurses would think limits on visitation should be used.

HYPOTHESIS 5b: Nurse perceptions of family helping patients to understand medical information will be positively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between perceptions of family helping patients to

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Table 25. Relation between Outcome Measures and Nurse Perception of Family Assisting in Patient Understanding.		
Restrictive Intent Scale (RIS)	r_s	-.394
	p	.000
	N	595
Positive Intent Scale (PIS)	r_s	.405
	p	.000
	N	595
Prior Non-Restrictive FP Decisions	r_s	.265
	p	.000
	N	610
Restrictive FP	r_s	-.502
	p	.000
	N	597
Open Visitation Index Score	r_s	.457
	p	.000
	N	626

understand medical information on FP intent and decisions, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to perceptions of family helping patients to understand medical information. All results were in the direction supporting less restrictive family presence and more positive decision-making and FP intent with increased nurse perception that families help patients to understand medical information (see Table 25).

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, helping patients understand medical information after controlling for improvement in quality of care related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 11.3% of the RIS variance which was revealed to be statistically significant, ($F=75.616$, $p<.001$). Examination of the betas identified that the individual predictors, quality of care (-.200, $p<.001$) and helping patients to understand medical information (-.285, $p<.001$) were significant predictors for families being asked to leave because of patient condition changes, codes or procedures. Both relations were negative therefore, the more help patients needed to understand medical information and the lower the quality of care the less nurses would think families should leave for codes, procedures or condition changes.

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The model explained only 8% of the AICUQ#35 variance which was statistically significant (F=53.339, p<.001), 13.6% (F=93.615, p<.001) of the AICUQ#56 variance and 19.1% (F=70.177, p<.001) of PIS. All three were also statistically significant. Individual contributions for quality of care and medical information were significantly related to predictions from the remaining outcome variables. However relations for the AICUQ#56 was negative, identifying that the more help patients needed to understand medical information and the more unsatisfactory quality of care there was, the less nurses would think limits on visitation should be used.

HYPOTHESIS 5c: Nurse perception of open visiting being good for patient recovery and healing will be positively associated with nurse-reported intentions and decision regarding FP (SUPPORTED).

To assess the relation between nurse perception that FP assists in patient recovery and healing, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to nurse perception that FP assists in patient recovery and healing. All results were in the direction supporting less restrictive family presence and more positive decision-making and FP intent with increased perceptions of open visiting being good for patient_recovery and healing (see Table 26).

Table 26. Relation between Outcome Measures and Nurse Perception that FP is Good for Recovery.

Restrictive Intent Scale (RIS)	r_s	-.431
	p	.000
	N	595
Positive Intent Scale (PIS)	r_s	.471
	p	.000
	N	596
Prior Non-Restrictive FP Decisions	r_s	.375
	p	.000
	N	611
Restrictive FP	r_s	-.616
	p	.000
	N	599
Open Visitation Index Score	r_s	.612
	p	.000
	N	627

Multiple regression analysis was also conducted to assess relations between four of the original five outcome

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variables and the predictor variable, recovery and healing after controlling for improvement in quality of care related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 11.4% of the RIS variance which was revealed to be statistically significant, (F=76.305, p<.001). Examination of the betas identified that the individual predictors, quality of care (-.177, p<.001) and recovery and healing (-.314, p<.001) were significant predictors for families being asked to leave because of patient condition changes, codes or procedures. Both relations were negative therefore, the worse the recovery and healing and the lower the quality of care the less nurses would think families should leave for codes, procedures or condition changes.

The model explained only 8.3% of the AICUQ#35 variance which was statistically significant (F=55.268, p<.001), 13.4% (F=92.284, p<.001) of the AICUQ#56 variance and 20.8% (F=78.193, p<.001) of PIS. All three beta coefficients were statistically significant. Individual contributions for quality of care and recovery and healing were significant related to predictions in the three remaining outcome variables. However relations for the AICUQ#56 was negative, denoting the more patient healing and quality of care the less nurses would think limits on visitation should be used.

HYPOTHESIS 5d: Nurses perceptions of decreased family anxiety will be positively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between nurse perception that FP results in reduced

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Table 27. Relation between Outcome Measures and Nurse Perception that FP Reduced Family Anxiety.		
Restrictive Intent Scale (RIS)	r_s	-.431
	p	.000
	N	595
Positive Intent Scale (PIS)	r_s	.471
	p	.000
	N	596
Prior Non-Restrictive FP Decisions	r_s	.375
	p	.000
	N	611
Restrictive FP	r_s	-.616
	p	.000
	N	599
Open Visitation Index Score	r_s	.612
	p	.000
	N	627

family anxiety, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to nurse perception that FP reduced family anxiety. All results were in the direction supporting less restrictive family presence and increased perceptions that open visiting reduced family anxiety (see Table 27).

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, family anxiety after controlling for improvement in quality of care related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 11.2% of the RIS variance which was revealed to be statistically significant, ($F=75.065$, $p<.001$). Examination of the associated betas identified that the individual predictors, quality of care (-.215, $p<.001$) and family anxiety (-.277, $p<.001$) were significant predictors for families being asked to leave because of patient condition changes, codes or procedures. Both relations were negative therefore, the more anxious the family and lower the quality of care the less nurses would think families should leave for codes, procedures or condition changes.

The model explained only 8% of the AICUQ#35 variance which was statistically significant ($F=53.313$, $p<.001$), 13.7% ($F=94.598$, $p<.001$) of the AICUQ#56 variance and 16.8% ($F=60.057$, $p<.001$) of PIS. All three were also statistically significant.

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Individual contributions for quality of care and family anxiety related to predictions in all remaining outcome variables were significant. However relations for the AICUQ#56 predictors were negative, quality of care (-.189, p<.001) and family anxiety (.414, p<.001), denoting that the more anxious the family and unsatisfactory the quality of care, the less nurses would think limits on visitation should be made.

HYPOTHESIS 5e: Nurse perception of insufficient unit space to accommodate visitors will be negatively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between nurse perception that FP and limiting FP when there is the perception that there is reduced unit space, Spearman Rho Correlations were computed for all five outcome variables. With the exception of the Prior Non-Restrictive FP Decisions scale, all outcome variables were significantly related to nurse perception of unit space. If nurses perceived limited unit space, they were more likely to restrict FP if they had negative intentions towards FP (see Table 28).

Table 28. Relation between Outcome Measures and Nurse Perception that FP Reduces Unit Space.

Restrictive Intent Scale (RIS)	r_s	.263
	p	.000
	N	596
Positive Intent Scale (PIS)	r_s	-.146
	p	.000
	N	596
Prior Non-Restrictive FP Decisions	r_s	.042
	p	.303
	N	598
Restrictive FP	r_s	.406
	p	.000
	N	598
Open Visitation Index Score	r_s	-.257
	p	.000
	N	600

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, limited space after controlling for family satisfaction related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 10.8% of the RIS variance which was revealed to be statistically

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significant, (F=72.057, p<.001). Examination of the betas identified that the individual predictors, family satisfaction (-.306, p<.001) and limited space (.212, p<.001) were significant predictors for families being asked to leave because of patient condition changes, codes or procedures. Relation pertaining to family satisfaction was negative therefore, the more dissatisfied the family the less nurses would think families should leave for codes, procedures or condition changes.

The model explained only 7.9% of the AICUQ#35 variance which was statistically significant (F=51.264, p<.001), 17.3% (F=125.317, p<.001) of the AICUQ#56 variance and 16.5% (F=117.513, p<.001) of PIS. All three were also statistically significant. Individual contributions for family satisfaction and limited space were significant related to predictions in all remaining outcome variables. However relations for limited space related to PIS was negative (-.109, p=.004), denoting that the less space available the more nurses would think families should be asked to leave if patient conditions deteriorated.

HYPOTHESIS 5f: Nurse perceptions that open visitation/FP increases family satisfaction will be positively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between nurse perception that open FP is related to increased family satisfaction, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to nurse perception

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Table 29. Relation between Outcome Measures and Increased Family Satisfaction with Open FP.		
Restrictive Intent Scale (RIS)	r_s	-.360
	p	.000
	N	595
Positive Intent Scale (PIS)	r_s	.446
	p	.000
	N	596
Prior Non-Restrictive FP Decisions	r_s	.337
	p	.000
	N	604
Restrictive FP	r_s	-.449
	p	.000
	N	598
Open Visitation Index Score	r_s	.544
	p	.000
	N	607

of increased family satisfaction with open FP. If nurses believed that open FP was related to increased family satisfaction, they reported more positive perceptions of FP. (see Table 29).

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, family satisfaction after controlling for quality of care related to FP. Prior to analysis steps were taken to respond to required data assumptions. For RIS the model explained 11.5% of the RIS variance which was revealed to be statistically significant, ($F=77.021$, $p<.001$). Examination of the betas identified that the individual predictors, family satisfaction (-.213, $p<.001$) and quality of care (-.235, $p<.001$) were significant predictors for families being asked to leave because of patient condition deterioration, codes or procedures. Both relations were negative therefore, the more dissatisfied the family and lower the quality of care, the less nurses would think families should leave for codes, procedures or condition changes.

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The model explained only 9.3% of the AICUQ#35 variance which was statistically significant (F=62.034, p<.001), 13.5% (F=93.251, p<.001) of the AICUQ#56 variance and 11.2% (F=72.236, p<.001) of PIS. All three were also statistically significant. Individual contributions for family satisfaction and quality of care were significant related to predictions in all remaining outcome variables. However relations for family satisfaction (-.312, p<.001) and quality of care (-.215, p<.001) related to AICUQ#56 were negative. This result indicated that the more dissatisfied family were and lower the quality of care the less nurses would think families should be asked to leave if patient conditions deteriorated.

HYPOTHESIS 5g: Nurse perceptions of increased nurse time required with families due to FP will be negatively associated with nurse-reported intentions and decisions regarding FP (SUPPORTED).

To assess the relation between nurse perception that open FP is related to increased time required with families, Spearman Rho Correlations were computed for all five outcome variables. All outcome variables were significantly related to nurse perception that open FP is related to increased time required with the patient's family. If nurses had more negative perceptions of FP, they believed that open FP was related to increased time with patients' families answering questions and providing information (see Table 30).

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Table 30. Relation between Outcome Measures and Perception that Open FP Required More Time with Family.		
Restrictive Intent Scale (RIS)	r_s	.264
	p	.000
	N	596
Positive Intent Scale (PIS)	r_s	-.163
	p	.000
	N	598
Prior Non-Restrictive FP Decisions	r_s	-.057
	p	.166
	N	598
Restrictive FP	r_s	.394
	p	.000
	N	599
Open Visitation Index Score	r_s	-.269
	p	.000
	N	601

Multiple regression analysis was also conducted to assess relations between four of the original five outcome variables and the predictor variable, limited space after controlling for family satisfaction related to FP. Prior to analysis steps were implemented to respond to required data assumptions. For RIS the model explained 4% of the RIS variance which was statistically significant, (F=24.809, p<.001). Examination of the betas identified that the individual predictors, increased nurse time (.273, p<.001) and age (-.173, p<.001) were significant predictors for families being asked to leave because of patient condition deterioration, codes or procedures. Relation pertaining to age was negative indicating that the older the nurse the less he/she would think families should leave for codes, procedures or condition changes.

The model explained 3% of the AICUQ#35 variance which was statistically significant (R^2 =.030, F=18.620, p<.001), 5.4% (R^2=.054, F=34.333, p<.001) of the AICUQ#56 variance and 1% (R^2F=.010, F=5.774, p=.017) of PIS. All three were also statistically significant. Individual contributions for increased nurse time and age were

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significant related to predictions in all remaining outcome variables. In addition beta coefficient designating relations pertaining to age and the AICUQ#56 was negative (-.203, $p<.001$). This finding indicated that the older the nurse the less he/she would think there should be limits on visitation.

The selected study variables and statistical methods used for analyses reinforced the alignment of the TPB related to the research exploration. The 16 supported (out of a total of 21) hypotheses provided support for the significance and relevance of the contribution to families and nursing made by the overall exploration and individual analyses. Analyses of the rejected hypotheses provided evidence to support further exploration and promise of the contributions to be made.

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Chapter 5

Discussion

The purpose of this study was to explore nurse beliefs and other influencing variables related to FP intentions and decisions made by nurses, who work in adult ICUs. Relations and mediated influences were examined between behavioral beliefs, and social, personal, and situational variables of nurse-reported FP intentions and decisions. Findings are discussed in this chapter and examined in the context of the theoretical propositions of the Theory of Planned Behavior (Ajzen, 1991; 2005) and previously-conducted empirical studies. Study strengths, limitations, and implications for nursing practice will be presented along with recommendations for future research.

Sample and demographic findings

It was interesting to see that 40% of the respondents were 50 years old or over and more than half of the respondents reported having 10 years or more of ICU experience. While increases in nurses remaining in, returning to, or increasing hours in the workforce during times of economic recession is a historical phenomenon, it has been suggested that the number of nurses remaining in the workforce today appear more extreme (Buerhaus, Auerbach & Staiger, 2009). Even though the demographic profile of nurses in the workforce evolved over time due to a confluence of socio-demographic and educational forces, economic downturns are like a catalyst to increased RN participation in the labor market (Buerhaus, Staiger & Auerbach, 2000b).

A decrease in the numbers of younger nursing students started in the 1980s because of a decline in the size of the age 15 to 19 years cohort from which nursing education programs recruited students. Additionally, the average age of hospital

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employed RNs increased by 5.3 years compared to 4.5 years (from 37.7 to 41.9 years) for all working RNs between 1983 and 1998 (Staiger, Auerbach & Buerhaus, 2000). However, Buerhaus, Auerbach and Staiger (2009) identified that in more recent years RN workforce composition changes were more extreme. During 2001 to 2008 an estimated 59% (230,000) increase of the total (387,000) hospital RN employment was older RNs (ages 50-64) compared to a decrease in middle aged RNs (ages 35-49) and 33% (126,000) increase in RNs under age 35 years. During the same period of time little employment took place in non-hospital employment settings. Preference for hospital employment is believed to have continued because of the higher average compensation, more generous benefits, and favorable scheduling flexibility (Buerhaus, Auerbach & Staiger, 2009).

ICUs, historically an attractive work setting to young graduate nurses have continued to draw an increased percentage of younger new graduates. However the quantity of young newly graduated nurses has decreased because they come from a shrinking overall total (Buerhaus, Staiger & Auerbach, 2000a). The evolving reduction in women entering traditionally female-dominated fields and the expansion of career opportunities for women in traditionally male-dominated careers over the last 3 decades have also contributed to the demographic changes related to the nurse workforce (Staiger, Auerbach & Buerhaus, 2000). Another contributing factor to the changes has been the 1980s expansion of associate degree nursing programs that has typically attracted older individuals (Buerhaus, Staiger & Auerbach, 2000b). The large sample of 50 and older aged respondents in the dissertation study align with the presented socio-demographic nurse changes that have occurred over time.

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As supported by hypothesis 1a, the older the nurse the less restrictive the FP decisions were and the more autonomous the nurses were in their reported intentions and decisions. Older nurses compared to younger nurses reported having participated in past decisions and planned to make future decisions that were more positive toward FP even if such decisions were different than policy. These positive FP decisions and intentions could ultimately help to achieve a tipping point of change related to family presence as the older and more experienced nurses were significantly more positive about FP than younger nurses. This openness may reflect an increased degree of confident performance with increased age and experience that not only would put patients and family first, but could also serve as a model for other nurses and move hospitals toward a more family-centered philosophy.

Family presence beliefs of older nurses measured significantly more positive than negative based on the Behavioral Belief Scales. Both the Positive and Negative Behavioral Belief Scale (PBBS & NBBS) nurse scores were significantly associated with age. However, the PBBS was positively associated with age while the NBBS was negatively associated at significant levels. As the age of the nurses increased, positive FP beliefs also increased and negative FP beliefs decreased which stimulated the resultant effect that the older the nurse the more positive their beliefs toward FP. Not only did older nurses perceive themselves to be knowledgeable regarding how to support families during emotional upheavals, typical impediments to family visits (insufficient space, nurse time, deteriorating patient conditions) were not perceived as reasons to limit FP. Older nurse beliefs about the impact of limited space and nurse time related to FP were both negatively associated with age. Age and space were

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significantly associated while nurse time and age were non-significant. Nurse perceived knowledge was positively associated at a significant level to age. Results supported that older nurses compared to younger nurses were more willing to allow FP even when there was limited space in patient rooms or when the patient experienced a cardiac arrest or some other deleterious condition change. Older nurses allowed FP despite additional use of their time to answering questions or providing explanations to family members. Again, the overall resultant effects of these responses were that the older the nurse the more positive their beliefs toward family presence and personal confidence in handling emotional family occurrences.

This study is the first to identify significant associations between age and non-resuscitation oriented ICU nurse beliefs, intentions and decisions regarding FP. Despite the plethora of studies related to FP during resuscitation there is only one study (Basol, Ohman, Simones & Skillings, 2009) that has identified an association between nurse age and beliefs related to FP. Older nurses in the Basol, et al. study reported perceptions of more comfort providing emotional support to family members during resuscitation than younger nurses. Three other studies analyzed associations between age and FP beliefs however, no relations were identified (Ghiyasvandian, Abbaszadeh, Ghojazadeh & Zahra, 2009; Marco, Bermejillo, Sarrate, margall & Asiain, 2006; Twibell, Siela, Riwitis, Wheatley, Riegle & Bousman, 2008).

The small proportion of males (9%) in the study sample was comparable with the national proportion (9.6%) of male nurses (HRSA, 2010). However, it has been established that male nurses are attracted to nursing patient care environments that employ high levels of technology and are known to engender highly energetic activity

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levels (Evans, 2004). Therefore, even though the sample of male nurses in this study was consistent with the national population of male nurses, they were underrepresented for intensive care areas. Although there was an absence of theoretical data regarding the impact of gender on nursing care delivery and decisions, an exploratory hypothesis (1b) related to gender was investigated. The hypothesis that ICU male nurses would express more positive decisions regarding FP was based on a belief about the different manner in which male and female nurses deal with stress. Many ICU nurses (principally female) have reported that FP causes increased stress and is disruptive to their work (Agard & Maindal, 2009; Badir & Sepit, 2007; Duran, Oman, Jordan, Koziel & Szymanski, 2007; Knott & Kee, 2005). Because males are over represented in areas such as ICUs, emergency departments, and operating rooms, all known for increased amounts of stress, technology and patient care activity, it was presumed that the purposeful selection of such areas by males was due to a skillful ability to navigate the requirements (Egeland & Brown, 1989).

A gender difference was identified in this research unfortunately, it was not in the direction expected. Study results did not show that male nurses were more positive toward family presence. In fact, there were definitive male questionnaire responses that identified male nurses as being more restrictive. In general male nurses feel that there should be limits on open visitation (FP) and that not only is FP not helpful to caregivers, it interferes with patient comfort, rest and care. However, because of the small male sample size compared to that of the females, analyses may have been affected. The male sample size can increase the probability of a type 1 error being committed. A greater proportion of males under the age of 30 responded to the study than females

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under age 30. According to HRSA (2010), the rate of nurse aging, historically on the rise seems to now be slowing which may have allowed the less than 30 year old nurse population to increase. The proportion of male nurses in the less than 30 age group may be higher nationally than males in the 50 and over age group because nursing is now a more attractive career for men than in past decades. Consequently, this focus and finding deserves further investigation.

The race/ethnicity characteristics of the study sample, 85% Caucasian nurse respondents, are representative of the race/ethnicity within the nursing profession and the American Association of Critical Care Nurses (AACN). The White, non-Hispanic registered nurse population is 83.2% compared to 65% of the U.S. population who are White, non-Hispanic (HRSA, 2010) and 77% of AACN members who are White, non-Hispanic (AACN, 2012). It has been the observation of the researcher that two on-going behavioral trends may contribute to these demographic outcomes. Critical care nurse managers seldom select minority nurse candidates as staff nurses and very few minority nurses seek ICU nurse candidacy. The researcher has observed and explored this phenomenon in urban, community and academic hospital settings. This continued circumstance suggests a need for comprehensive recruitment and retention approaches to attract non-Caucasian nurses to critical care areas and, research to explore why non-Caucasian nurses may be under-represented in specialty units.

The lack of race/ethnicity associations related to FP intentions and decisions of ICU nurses was an unexpected finding. Because racial biases in health care (Smedley, Stith, & Nelson, 2003; Dovidio, Penner, Albrecht, Norton, Gaertner & Shelton, 2008) are not unlike other institutionalized implicit discriminate practices among various

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cultures within society, the presumption that such practices exist within the culture of nursing is not only logical, it is highly likely. Even though explicit prejudices and stereotypes are no longer as observable as in past times, it has been suggested that Caucasians continue to harbor implicit negative racial attitudes and stereotypes toward non-Caucasians, particularly Blacks (Dovidio, et al., 2008). Indirect biases can be manifested in patient/family communications and decisions, such as those involved in FP in adult ICUs. It is important to note that evidence of disparities related to clinician communications and decisions does exist (van Ryan & Fu, 2003). Pursuing analyses of racial associations related to FP decisions and intentions does not impugn the intentions or performance of nurses or other clinicians particularly in view of emerging evidence that many racial biases operate unconsciously and are unintended (Dovidio, et al., 2008). Exploring all potential reservoirs of racial bias may reveal opportunities for strategic change in disparity outcomes. Therefore, additional exploration of race related to FP is needed.

Two-thirds of the sample was staff nurses and over half reported that they spent 60-100% of time providing direct patient care. This direct care group was the targeted sample for this study as they are the ones who have a close-up view and perspective of FP in the intensive care unit. Often it is the staff nurse who knows what works and what does not or what can improve patient care. Staff nurses are patient-care experts at the unit level since they are individuals who interface the most with patients and families. Their decisions, intentions and actions establish the tone for patient and family relationships. Understanding staff nurse perceptions, beliefs and attitudes are critical to family centered care, family presence and ICU nursing practice. Nurse perceptions

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regarding the amount of time spent in direct patient care reinforced the merits of staff nurse study respondents. Moreover, the representative cross-section of staff nurse respondents provided credibility for the research data and ultimate contribution to FP knowledge.

Additional hypothesis findings and implications

Improving quality of patient and family hospital experiences has been a strategic long-term plan recognized across the U.S. (Chassin, Galvin & the National Roundtable on Health Care Quality, 1998). One of the most common unsatisfactory experiences for a family member is the admission of a loved one to an ICU when they are not permitted to remain with the loved one during the admitting process (Jamerson, et al. 1996; Williams, 2005). High levels of fear, anxiety and stress are experienced and often affect both the family and patient during admission. These emotions can affect patient healing and recovery and ultimately, family and patient perceptions of quality of care. The experiences have also been known to trigger extended length of stay (and costs), which can further heighten family and patient unease and anxiety (So & Chan, 2004).

It's Interesting to note the alignment between perceived benefits and outcome opportunities related to FP (satisfaction, communication, reduced medication errors and reduced adverse medical events) and the admission experiences. Supporting ICU Family presence could transform patient and family admission experiences and their perceptions of quality of care.

Medical information, family anxiety and satisfaction

Improving hospital and ICU experiences are goals that clinicians and administrators share. Such goals are measured by evaluating quality of care, which is

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comprised of patient and family satisfaction, patient safety, and patient care experiences and outcomes. Hypotheses within the study were designed to guide exploration of nurse perceptions regarding the impact of FP related to quality of care variables. More than twice as many nurses agreed that FP increased patient and family satisfaction, and decreased family anxiety (See Table 4). Overwhelmingly more nurses agreed than disagreed that receipt of patient information from family who are at the bedside can improve the quality of care, that FP has a positive effect on patients and family, and family at the bedside can help patients to understand medical information (See Table 4).

Medication errors and nurse time

Interestingly, nurses were not as positive about FP helping to reduce medication errors. More nurses disagreed that FP helped to reduce medication errors than agreed (see Table 4). Nurses may have indicated a less positive attitude about the reduction of medication errors because it may have been difficult to imagine how such a program could be implemented with a nurse role that may be felt to be full and sometimes even stretched. Additionally, to have family participate in some way with such a critically important nurse performed activity (medication administration) may have caused concerns regarding what would happen if something went awry. Because an overwhelming proportion (86.4%, N=602) of nurses indicated that FP caused an increased use of their time and made some (70%, N=631) feel their performance was constantly being scrutinized, such an additional initiative may feel too much.

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Education and certification

While not directly related to FP, studies (K-Gallagher, Aiken, Sloane & Cimiotti, 2011; Tourangeau, et al., 2006; Van den Heede, et al., 2009) have identified the impact of nurse education and certification related to patient outcomes. The relations found between baccalaureate education and improved patient outcomes have influenced recommendations from several medical and nursing professional organizations to increase the number of Baccalaureate-prepared nurses (IOM, 2010; AACN, 2000; Tri-Council for Nursing, 2010). The studies identified significant associations related to decreased mortality, failure to rescue (when patient condition is deteriorating), decreased length of stay and nurse education (K-Gallagher, Aiken, Sloane & Cimiotti, 2011; Tourangeau, et al., 2006; Van den Heede, et al., 2009). Extending the linkage of education and certification to FP through testing the hypotheses that nurses with higher levels of education and critical care certified nurses would be more positive towards FP seemed a logical extension. Results from the presented studies were supportive of the linkage. Five outcome variables (RIS, PIS, Non-restrictive Decisions, Restrictive FP and Open Visitation Index Score) were assessed related to both education and certification. Results identified that nurses with higher education levels or certification were more positive toward FP and made less restrictive related decisions.

One of the surprising study findings was that compared to nurses 49 years old and younger larger numbers of older nurses were critical care certified and educated at graduate levels. (see Table 14). The majority of these nurse respondents were staff nurses in that only 8.7%(52) of the sample reported that they had advanced practice nurse titles. This finding along with the reported positive beliefs and attitudes of older

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nurses towards FP offers an exciting opportunity to merge response to the findings. Interventions could be created that employ both, the older nurse and their positive perspectives and behaviors related to FP.

Knowledge and skills

Certified nurses believed that they were more knowledgeable and skillful in dealing with families in need of emotional support. This perception was consistent with only one previously reported FP study comprised of a much smaller sample (N=46) of nurses (Marco, et al., 2006). The majority of the Marco nurse respondents believed they were qualified to interact with and meet the emotional needs of family members. Certified nurses in the current study were also more likely to perceive that FP positively affected other indicators for quality of care and patient safety and were more likely to believe that FP decreased family anxiety, improved family satisfaction, and was good for patient healing and recovery. These findings are consistent with expectations as critical care certification is indication that nurses have acquired specialized knowledge, skills and experience in the care of ICU patients. Having met the rigorous requirements to achieve the credential designating one as an expert, it is expected that the certified nurse would be knowledgeable about the importance of family to the needs and care of patients.

Past experience

Nurses, who had personal experiences as an ICU patient or family member were more likely to allow FP. This finding is consistent with other past research (Basol, Ohman, Simones & Skillings, 2009; Duran, Oman, Jordan, Koziel & Szymanski, 2007; MacLean, et al., 2003; Twiibell, et al., 2008) However, study findings also identified

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that when allowed to be present during times other than those designated by hospital policy, family members were rarely permitted access without some form of restriction. Results of the study seemed to also pinpoint lack of clarity about whether a defined visiting guideline or rule was interpreted by the nurses as a visiting restriction. This is a point of clarification that deserves more exploration.

Recovery and healing

Patients and families have long expressed interest to be together during hospitalization with attention now sharply focused and support mounting for FP to be implemented (Mason, 2003; Moreland, 2005). FP is one of the pillars of the family-centered philosophy of care and service that has been identified as underway in many hospitals (Henneman & Cardin, 2002). Notable public commentary and quality improvement initiatives have heightened interest in FP. However, controversy and staff resistance continue to be evidenced (Davidson, Daly, Brady & Higgins, 2010; Nelson & Polst, 2008; Roland, Russell, Richards and Sullivan; 2001). Findings from the current study indicated that while over 60% (N=662) of the nurses believed that open FP was good for patient recovery and helped patients to understand medical information, 75% (N=601) of the nurses felt there should be some limitations on FP. And notably, 59% (n=370) of the nurses do not routinely grant open FP. These responses illustrate the concerns about FP that some nurses continue to perceive. Given the findings regarding the value and recognition held by nurses for the positive benefits of FP on patients, families and quality of care more exploration of nurse feelings about limitations on FP is needed. Better understanding of the limits could position the opportunity to further the progression of FP.

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TPB contributions and implications

The explanatory theoretical framework (Theory of Planned Behavior) that guided the study, proved to be useful in explaining and predicting nurse behaviors related to FP decisions. Outcomes of hypotheses related to background factors modifying behavior was illustrative of the theory's systematic explanatory process. Guided by the TPB, the Adult ICU Questionnaire (AICUQ) contained items designed to uncover and measure underlying nurse beliefs, associated attitudes, intentions and behaviors related to FP in adult ICUs. Because beliefs were conceptualized as modifiable by background variables (Fishbein & Ajzen, 2005) the AICUQ was also designed to uncover and measure the impact of select variables that were theorized to influence FP intentions and decisions.

Overall findings related to background variables supported the theory assumption that background variables would influence beliefs and ultimately, intentions and behavior. Results indicated that all selected background variables in this research except mediated outcomes for gender, race, and past experiences made contributions to nurse-reported FP decisions in adult ICUs. Nurse-reported FP decisions and intentions were influenced by age of nurses, gender, race, highest level of education attained, and critical care specialty certification. Past experiences as an ICU patient or family member of an ICU patient, and possession of skills and knowledge regarding how to support family members during emotional reactions were also influential to nurse-reported intentions and decisions. In addition, evidence related to nurse perceptions about the relation of FP to medication errors, family helping patients with medical information, patient healing and recovery, family anxiety, family satisfaction,

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space to accommodate family, and time required from nurses for FP were also identified as influential to nurse-reported FP intentions and decisions.

In brief, the TPB presents that beliefs shape attitudes and both connect to behavior primarily through intentions (see Figure 2). Analysis of the mediation hypotheses provided additional data regarding the influence of beliefs and attitudes on behavior. In addition, mediating hypotheses affirmed the fit of the TPB with the study. Analysis of the mediation hypotheses uncovered the degree to which beliefs influenced relations between predictor variables (background factors) and outcome variables (RIS, PIS, PDMS, AICU#56, Open Visiting Index) through which the FP intentions and decisions were uncovered. Mediation not only identified the magnitude of belief impact to relations between background and outcome factors, it also assisted in contextualizing the nurse reported intentions and behaviors. Outcomes identified negative or positive directions as well as, by how much.

The Positive (PBBS) and Negative (NBBS) Behavioral Belief Subscales were conceptualized as the mediating variables used to determine the impact of beliefs on relations between the predictors and outcomes. Positive and Negative beliefs fully mediated relations related to age and two outcome variables (PIS and open visiting index), education and four outcome variables (open visiting index, PIS, AICUQ#56 and #35), certification and four outcome variables (open visiting index, RIS, AICUQ#56 and #35), and all knowledge and skill variables. The belief subscales partially mediated three outcome variables related to age (RIS, AICU#56 and #35) and one outcome variable related to education (RIS). In general mediation hypotheses of race, gender and past experiences did not yield productive results. Despite the general absence of

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contribution to FP intentions and decisions from the mediation of race, gender and past experiences, the evidence is clear that this research supported the efficacy of the TPB. Consistent with the acknowledged efficacy Fishbein and Ajzen (2005) have pointed out that while behavior is influenced primarily by attitudes, one or others of the theory determinants may serve as primary antecedents to intentions (See Figure 2), demonstrating contribution to behavior while the contribution of other determinants that are not primary influencers may be none or negligible.

Overall mediation results regarding the influence of social, personal and situational variables related to FP decisions and intentions of ICU nurses identified that variances related to almost all of the analyzed predictors were overwhelmingly accounted for by statistically significant behavioral beliefs. This important outcome not only supported the efficacy of the theory, it empirically identified a foundation of some nurse attitudes and behaviors toward family presence in adult ICUs.

Research Significance

This study is illustrative of one of nursing's overall professional goals. It provides the opportunity for scholarship, research and practice to make an integrated difference related to the care of families in the adult ICUs. Outcomes from this research expands nursing knowledge of the demographic factors, beliefs, and attitudes that affect nurse intent and decision-making regarding family presence in adult intensive care units. It further adds to the existing body of knowledge data regarding the impact of education and certification on specific specialty-oriented nurse behaviors. In this study, certified nurses and those with higher educational levels reported more positive beliefs and behaviors toward family presence and family participation, factors which have been

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shown to positively affect patient outcomes (Kendall-Gallagher, Aiken, Sloane, & Cimiotti, 2011). The fact that nurses who reported they had more skills and knowledge in providing emotional support to families in ICU also reported that they were more positive about family presence points to the importance that staff development and other educational programs can play in influencing patient outcomes. This along with the knowledge that FP beliefs and attitudes clearly drove nurse behaviors elevates the significance of this research and offers great promise because beliefs are alterable and education can be made accessible (Ajzen & Fishbein, 2005).

Study Strengths

The size and sample of ICU staff nurses whose primary work role was direct patient care to in-patient ICU patients, gave the study access to an ample number of expert respondents. These are the precise practitioners whose perspectives were desired and targeted. Even though the strengths of the large sample outweighed the limitations care was undertaken to avoid the hazards of an overpowered study. Not all things bad are associated with large samples. Cohen (1988) points out that while the the relationship between sample size and power increases the probability of detecting the result sought, the larger the sample the smaller the associated error.

The research was strengthened by the selection of statistical methods that were aligned well with the research design and theoretical framework. The alignment of selected research variables and concepts with actual nurse experiences elevates the potential utility of the outcomes and acknowledges contributions of nurses and families. The alignment of selected background factors with established quality of care interests (Garland, 2005; Chelluri, 2008) for intensive care services, speaks to the important

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contribution this study makes. The relevance of family presence to the Profession and those for whom nursing services are provided, gave deserving worth to this study.

Use of an online process allowed access to a large sample over a short period of time. It allowed respondents to anonymously complete the questionnaire at a time that was convenient for them. Overall, compared to traditional research methods the internet allowed collection of data to occur in a more efficient and cost effective manner.

Recommendations

To encourage translation of outcomes to practice employing a collaborative approach with one or more hospitals might enhance translation to practice and enrich outcomes. Such collaboration could specifically target research replication and/or strategies to address mediation findings regarding beliefs, how to expand certification and educational credentials of staff nurses. Future research could include data collection related to generational differences with an interest to target strategies that could both, further FP and retention of older nurses in non-traditional bedside roles.

There are added topics of research inquiry that would broaden the scope and contribution of this particular type of research. Exploration of additional specific hospital characteristics would be an interesting expansion. Including perspectives of nurses from Magnet Hospitals and institutions with non-traditional financial structures would be an interesting investigation (e.g. for-profit systems, government funded research hospitals, Veterans hospitals).

There is a need to broaden the sample to include those not in professional organizations or members from more than one professional organization. A more diverse sample might emerge if recruitment included culturally diverse specialty nurse

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organizations such as the National Black Nurse's Association, National association of Hispanic Nurses, and National American Arab Nurses Association. Additionally, expanding to include nurses from other specialty-oriented patient care specialties would offer opportunity for comparative data. Including nurses from areas such as pediatric ICUs, postanesthesia units, emergency departments, and burn units, with attention to power and sample effect sizes could add to the body of knowledge.

There is a need to restructure a few of the survey questionnaire items when tool is used with future research. There was additional complexity encountered with some analysis because of the manner in which survey answer options for two questions were structured. Using the "select all that apply" answer option interfered with an efficient analysis of the two questionnaire items. Additionally, offering opportunity for narrative additions to survey item answers resulted in an overwhelming amount of narrative responses. There may be a need to clarify definitions with subsequent studies. Outcomes of a couple of questionnaire items seemed to indicate that respondents did not understand that "open visiting" meant no restrictions related to visiting privileges.

Lastly, with subsequent national studies, a question should be included regarding from what region of the country are the nurses employed. These data would accommodate more specific analyses and identify possible geographical differences.

Study Limitations

Use of the American Association of Critical Care Nurses to acquire participants may limit generalizability of results. The use of a convenience sample made up of individuals who self- selected to participate could also affect generalizability.

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The use of an online process could affect outcomes. Not all nurses have equal access to the internet. The design of the online survey would not allow respondents to stop work on the survey and return at a later time to complete it without loss of anonymity. Another limitation was the absence of a process/mechanism that would assure that only one completed questionnaire per respondent was completed.

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APPENDIX A

Research Informed Consent

Nurse Beliefs and Other Influencing Variables on Nurses' Intentions and Decisions Regarding Family Presence in Adult ICUs

Principal Investigator (PI): Beverly G. Jones, Nursing Doctoral Student
College of Nursing, Wayne State University
313-801-9162 cell phone

Purpose: You are being asked to be in a research study of nurse beliefs about family visiting in adult ICUs because you work with U.S. hospitalized adult critical care patients. This study is being conducted by a doctoral student enrolled in the College of Nursing at Wayne State University. In this research study the researcher will examine beliefs and attitudes of ICU nurses related to family presence in adult ICUs.

Study Procedures: Informed consent refers to the voluntary choice of an individual to participate in the study based on their accurate and complete understanding of the study purpose, procedures, risks and benefits. The survey will take approximately 15 to 20 minutes to complete. Nurses will be asked to share their beliefs and feelings via a survey that includes questions/items about family and friends being allowed or not allowed to visit loved ones who are ICU patients. The survey is anonymous and the researcher will not have access to any identifying information of the study participants. There is no way for the researcher to find out who the participants are and individual questionnaire responses will not be shared with AACN or any other entities or individuals.

Benefits: As a participant in this research study, there will be no direct benefit to you. Your participation will however contribute to the growing body of knowledge related to transforming patient care at the bedside from the perspective of nurses who provide care to ICU patients.

Risks and study cost: There are no costs or risk to you for participation in this research study.

Compensation: You will not be paid for taking part in this study.

Confidentiality: All information collected about you during the course of this study will be kept without any identifiers.

Voluntary Participation/Withdrawal: Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. Your decision will not change your present or future relationship with Wayne State University or AACN.

Questions: If you have any questions about this study now or in the future, you may contact Beverly G. Jones at the following phone number (313)-801-9162. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Consent to participate: By progressing to the survey you are agreeing to participate in this study.

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The Adult ICU Family Presence Survey

Adult Intensive Care Nurses' Demographic Profile
Please select your responses based on your individual characteristics and perspective as an ICU professional nurse.
Select the answer (s) for items 1-18 that best corresponds to your status, understanding, belief and/or opinion.
Completion of this portion of the survey will take approximately 5 minutes. Please respond to all items.

1. What is your age?

- ◯ under 30 yrs.
- ◯ 30 - 39 yrs.
- ◯ 40 - 49 yrs.
- ◯ 50 - 59 yrs.
- ◯ 60 yrs. or older

2. What is your gender?

- ◯ Male
- ◯ Female

3. What is your race/ethnicity?

- ◯ African American/Black
- ◯ Caucasian/White
- ◯ White Hispanic/Latino
- ◯ Non-White Hispanic/Latino
- ◯ Mixed race/ethnicity
- ◯ Asian
- ◯ Hawaiian or Other Pacific Islander
- ◯ American Indian or Alaska Native
- ◯ Arabic/Middle Eastern/Chaldean

Other (please specify)

4. What is your highest level of education?

- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor Degree
- ◯ Master's Degree
- ◯ DNP
- ◯ PhD

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5. What professional certification do you hold? (select all that apply and are current)

- [ ] CCRN Adult critical care nursing certification
- [ ] CCRN-E Adult Tele-monitoring critical care nursing certification
- [ ] ACNPC Adult acute care nurse practitioner
- [ ] CMC Adult cardiac medicine nursing certification
- [ ] CNML Certification for nurse managers/leaders
- [ ] PCCN Adult progressive care nursing certification
- [ ] Adult acute critical care clinical specialist
- [ ] CSM Adult cardiac surgery medicine nursing certification

Other (please specify)

6. What is your nurse position? (Select all that apply)

- [ ] ICU Staff Nurse
- [ ] ICU Charge nurse
- [ ] ICU Assistant Nurse Manager
- [ ] ICU Nurse Manager/Director
- [ ] Critical Care Nurse Educator
- [ ] Critical Care APRN
- [ ] ICU Travel Nurse
- [ ] ICU Agency Nurse
- [ ] Critical Care Clinical Nurse Specialist

Other (please specify)

7. In what Kind of intensive care unit do you primarily work?

- ○ Adult Burn
- ○ Adult Surgical
- ○ Adult Medical – non cardiac
- ○ Adult Cardiac
- ○ Adult Neurosurgery
- ○ Adult Medical-Surgical

Other (please specify)

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8. What is your primary work shift?

- ◯ Days/evening
- ◯ Straight days
- ◯ Evenings/night
- ◯ Straight evenings
- ◯ Straight nights

Other (please specify)

9. By what kind of hospital are you employed?

- ◯ University
- ◯ Non – University Teaching
- ◯ Community – Teaching
- ◯ Community – Non Teaching
- ◯ Rural

Other (please specify)

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The Adult ICU Family Presence Survey

10. How long have you worked as an ICU Nurse?

- ◯ Less than one yr.
- ◯ 1–5 yrs.
- ◯ 6–10 yrs.
- ◯ More than 10 yrs.

11. What, if any, experience with family presence in an ICU have you personally had as a patient and/or family member of a patient?

- ◯ None
- ◯ Minimal experience
- ◯ Moderate experience
- ◯ Quite a bit of experience
- ◯ Very much experience

12. What proportion of your typical work day is spent providing direct care to patients?

- ◯ less than 15%
- ◯ 15-25%
- ◯ 25-60%
- ◯ 60-100%

13. What is your current unit visitation policy? (select all that apply)

- ☐ Open visitation (no restrictions)
- ☐ Defined number of visitors who are allowed at the same time
- ☐ Defined number of visiting times per day
- ☐ Defined length of time for visits
- ☐ Visitors must be adults

Other (please specify)

14. What is your hospital's size?

- ◯ < 300 Beds
- ◯ 300 – 599 Beds
- ◯ > 600 Beds
- ◯ Unknown

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15. Are there specific times during the day when no visitors are allowed on your ICU unit?

- ◯ Do not know
- ◯ No

Yes (please explain)

16. For what reasons are exceptions to your ICU unit's visiting policy/practice made? (Select all that apply)

- ☐ Nurse professional judgment regarding appropriateness
- ☐ Family preference
- ☐ Patient condition
- ☐ Physician preference
- ☐ Patient preference

Unit issues (please explain) or Other

17. In your opinion what visitation policy would be ideal for your unit? (Select all that apply)

- ☐ Open visiting any time and any length of time in 24 hours, by anyone patient approves
- ☐ Designated times throughout the 24 hour day
- ☐ Open visiting with defined limits related to number of visitors in room at same time
- ☐ Open visiting during the day time only
- ☐ Designated persons only (i.e. no children under age 12 yrs.)

Other (please specify)

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18. Who should make the decisions about visitation for ICU patients? (Please rank-order your selections according to: 1 for the group you think should have first priority for making visitation decisions through to 9 for the group you think should have last priority for making visitation decisions).

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Nurse	○	○	○	○	○	○	○	○	○
Nurse Manager	○	○	○	○	○	○	○	○	○
Social Worker	○	○	○	○	○	○	○	○	○
Attending Physician	○	○	○	○	○	○	○	○	○
Medical Resident	○	○	○	○	○	○	○	○	○
Patient, if able	○	○	○	○	○	○	○	○	○
Family	○	○	○	○	○	○	○	○	○
Medical Director	○	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○	○

(please specify)

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The Adult ICU Family Presence Survey

Adult Intensive Care Family Presence Questionnaire (AICFPQ)
Select the response that best describes your belief or feeling regarding the following survey items. There are no right or wrong answers. Completion of this portion of the survey will take approximately 10-15 minutes.

Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
1. Open visitation (no restrictions) disrupts nursing care to patients.	○	○	○	○	○	○	○
2. My nurse manager's approval of my family visitation decisions is important to me.	○	○	○	○	○	○	○
3. Open visitation (no restrictions) in ICUs is good for patient recovery and healing.	○	○	○	○	○	○	○
4. Information about patients from family members who are at the patient's bedside can improve the quality of nursing care.	○	○	○	○	○	○	○
5. Open visitation (no restrictions) helps to reduce medical errors when family members are present.	○	○	○	○	○	○	○
6. Patient satisfaction increases when open visitation (no restrictions) is practiced.	○	○	○	○	○	○	○
7. Visiting policies and practices should be adapted based on what is believed about the culture/ethnicity of the patient.	○	○	○	○	○	○	○
8. Overall patients prefer to have open visitation (no restrictions).	○	○	○	○	○	○	○

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
9. Family members should be asked to leave the unit when patient procedures must be done.	○	○	○	○	○	○	○
10. The risk of patient infection increases when open visitation (no restrictions) is practiced.	○	○	○	○	○	○	○
11. Open visitation (no restrictions) has a positive effect on the family.	○	○	○	○	○	○	○
12. When I permit open visiting (no restrictions), I am doing something positive for patients.	○	○	○	○	○	○	○
13. Open visitation (no restrictions) is helpful to caregivers.	○	○	○	○	○	○	○
14. Families help patients to understand medical information.	○	○	○	○	○	○	○
15. An open visitation (no restrictions) policy infringes upon the patient's privacy.	○	○	○	○	○	○	○
16. Open visitation (no restrictions) causes stress for the patient.	○	○	○	○	○	○	○

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
17. I usually permit open visitation (no restrictions) however, when I have less time to devote to family needs I deny open visitation.	◯	◯	◯	◯	◯	◯	◯
18. The medical director of my ICU would approve if I practiced open visitation (no restrictions).	◯	◯	◯	◯	◯	◯	◯
19. Open visitation (no restrictions) decreases family anxiety.	◯	◯	◯	◯	◯	◯	◯
20. If family members are angry or demanding, I tend to restrict their visiting more than I would for a quiet, polite family.	◯	◯	◯	◯	◯	◯	◯
21. Open visitation (no restrictions) is exhausting for family members because they feel compelled to constantly be present.	◯	◯	◯	◯	◯	◯	◯
22. Open visitation (no restrictions) makes nurses feel like their performance is constantly being scrutinized.	◯	◯	◯	◯	◯	◯	◯
23. Making the same decision as other nurses in my unit regarding open visitation (no restrictions) is important to me.	◯	◯	◯	◯	◯	◯	◯
24. Open visitation (no restrictions) should always be allowed when a patient is dying.	◯	◯	◯	◯	◯	◯	◯

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25. In a 5 day timeframe what percent of time do you allow open visitation (no restrictions) in the ICU?

- ◯ <10%
- ◯ 10-26%
- ◯ 27-42%
- ◯ 43-58%
- ◯ 59-74%
- ◯ 79-90%
- ◯ >90%

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
26. Open visiting (no restrictions) should be the policy in my ICU.	○	○	○	○	○	○	○
27. If I like the family members, I would let them be present at the bedside more than family members I do not like.	○	○	○	○	○	○	○
28. Open visitation (no restrictions) interferes with the patient's rest.	○	○	○	○	○	○	○
29. When families try to help patients understand medical information, they often cause more confusion for patients.	○	○	○	○	○	○	○
30. Open visitation (no restrictions) is the usual practice in my ICU.	○	○	○	○	○	○	○
31. Families should be asked to leave the unit when the patient's condition suddenly deteriorates.	○	○	○	○	○	○	○
32. Patients rest easier when a family member is present.	○	○	○	○	○	○	○

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
33. Open visitation (no restrictions) sometimes interferes with the nurse's management of patient visiting.	○	○	○	○	○	○	○
34. My nurse manager thinks I should approve open visitation (no restrictions).	○	○	○	○	○	○	○
35. I have previously made decisions allowing family members to visit without any restrictions.	○	○	○	○	○	○	○
36. Open visitation (no restrictions) saves time for nurses and other team members.	○	○	○	○	○	○	○
37. Open visitation (no restrictions) infringes on the confidentiality of other patients in the ICU unit.	○	○	○	○	○	○	○
38. The nursing culture of my ICU unit is not supportive of nurses making decisions to permit open visitation (no restrictions).	○	○	○	○	○	○	○

39. In a 5- day timeframe what percent of open visitation (no restrictions) time is most beneficial for the patient?

- ○ <10%
- ○ 10-26%
- ○ 27-42%
- ○ 43-58%
- ○ 59-74%
- ○ 79-90%
- ○ >90%

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
40. I feel pressure to make decisions to permit open visitation (no restrictions) by family members.	◯	◯	◯	◯	◯	◯	◯
41. Family satisfaction increases when open visitation (no restrictions) is practiced.	◯	◯	◯	◯	◯	◯	◯
42. The medical director's approval of my visitation decisions is important to me.	◯	◯	◯	◯	◯	◯	◯
43. When the unit is busy, it is too difficult to have open visitation (no restrictions).	◯	◯	◯	◯	◯	◯	◯
44. ICU nurse satisfaction increases when open visitation (no restrictions) is practiced.	◯	◯	◯	◯	◯	◯	◯
45. In an attempt to not be caught in the middle of a conflict in communications between family members and physicians nurses may restrict visitation..	◯	◯	◯	◯	◯	◯	◯
46. Open visitation (no restrictions) has a positive effect on patients.	◯	◯	◯	◯	◯	◯	◯
47. Because of the patient stress that I anticipate will accompany open visitation (no restrictions) I sometimes deny open visitation requests.	◯	◯	◯	◯	◯	◯	◯
48. I expect to make decisions regarding ICU open visitation (no restrictions) in the future.	◯	◯	◯	◯	◯	◯	◯

49. In a 5- day timeframe what percent of time would you like to allow open visitation (no restrictions)?

◯ <10%

◯ 10-26%

◯ 27-42%

◯ 43-58%

◯ 59-74%

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Select the response that best describes your beliefs or feelings.

	Strongly agree	Moderately agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Moderately disagree	Strongly disagree
50. I have very good skills and knowledge regarding how to help family members through emotional reactions to patient conditions/events.	○	○	○	○	○	○	○
51. It is good nursing practice to grant or deny open visiting (no restrictions) based on the race/ethnicity of patients.	○	○	○	○	○	○	○
52. If the patient is conscious, I tend to allow open visiting (no restrictions) more than if the patient were unconscious or heavily sedated.	○	○	○	○	○	○	○
53. If a patient requested it, I would allow open visitation (no restrictions) even if it was not usual policy.	○	○	○	○	○	○	○
54. Families should be asked to leave the unit if the patient codes and resuscitation must be implemented.	○	○	○	○	○	○	○
55. If an attending physician requested it, I would allow open visiting (no restrictions) for a particular patient even if it was not usual unit policy.	○	○	○	○	○	○	○
56. There should be certain limits on visitation in ICUs.	○	○	○	○	○	○	○
57. The amount of space available for patient visitors sometimes causes me to restrict the number of visitors.	○	○	○	○	○	○	○
58. Open visitation (no restrictions) causes nurses to spend an increased amount of time answering questions and providing information to families.	○	○	○	○	○	○	○

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Please add any comments about or personal experiences with open visiting (no restrictions) that you would like to add.

Thank you for taking the time to complete this survey!

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APPENDIX B

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
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http://irb.wayne.edu

CONCURRENCE OF EXEMPTION

To: Beverly Jones
College of Nursing

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: February 21, 2012

RE: IRB #: 017412B3X

Protocol Title: Nurse Beliefs and Other Infuencing Variables on Nurses' Intentions Regarding Family Presence in Adult ICUs

Sponsor:

Protocol #: 1202010582

The above-referenced protocol has been reviewed and found to qualify for **Exemption** according to paragraph #2 of the Department of Health and Human Services Code of Federal Regulations [45 CFR 46.101(b)].

- Revised Protocol Summary Form (received in the IRB Office 02/16/2012)
- Protocol (received in the IRB Office 01/25/2012)
- The request for a waiver of the requirement for written documentation of informed consent has been granted according to 45 CFR 46.117(1)(2). Justification for this request has been provided by the PI in the Protocol Summary Form. The waiver satisfies the following criteria: (i) The only record linking the participant and the research would be the consent document, (ii) the principal risk would be potential harm resulting from a breach of confidentiality, (iii) each participant will be asked whether he or she wants documentation linking the participant with the research, and the participant's wishes will govern, (iv) the consent process is appropriate, (v) when used requested by the participants consent documentation will be appropriate, (vi) the research is not subject to FDA regulations, and (vii) an information sheet disclosing the required and appropriate additional elements of consent disclosure will be provided to participants not requesting documentation of consent.
- Research Information Sheet (dated 01/25/2012)
- Data collection tools: Adult Intensive Care Nurses' Demographic Profile and Adult Intesive Care Family Presence Questionnaire (AICFPQ)
- Receipt of letter of support from American Association of Critical-Care Nurses (dated 01/12/2012)

This proposal has not been evaluated for scientific merit, except to weigh the risk to the human subjects in relation to the potential benefits.

- Exempt protocols do not require annual review by the IRB.
- All changes or amendments to the above-referenced protocol require review and approval by the IRB **BEFORE** implementation.

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NOTICE OF EXPEDITED AMENDMENT APPROVAL

To: Beverly Jones
College of Nursing

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: March 21, 2012

RE: IRB #: 017412B3X

Protocol Title: Nurse Beliefs and Other Infuencing Variables on Nurses' Intentions Regarding Family Presence in Adult ICUs

Funding Source:

Protocol #: 1202010582

Expiration Date:

The above-referenced protocol amendment, as itemized below, was reviewed by the Chairperson/designee of the Wayne State University Institutional Review Board (B3) and is APPROVED effective immediately.

- Protocol – Other changes which include posting the approved research announcement to the AACN Facebook website. This change does not affect risk to participants.

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ABSTRACT

NURSE BELIEFS AND OTHER INFLUENCING VARIABLES ON NURSES' INTENTIONS AND DECISIONS REGARDING FAMILY PRESENCE IN ADULT ICUS

by

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Advisor: Dr. Linda Lewandowski

Major: Nursing

Degree: Doctor of Philosophy

Despite decades of compelling evidence regarding patient and family interest to be with loved ones or the lack of detrimental effects from being together, some nurses are not convinced of the merits of family presence (FP). Implementation of family presence in adult ICUs remains controversial for nurses. The feelings of many nurses, who are gate keepers related to patient visitation, continue to influence restrictions and/or inconsistent visiting practices for patients and families. Some hospitals have begun to permit relatives to be present during cardiopulmonary resuscitation (CPR) of adult loved ones, yet the availability of unrestricted access beyond official ICU visiting hours for families continues to vary from one institution to another, one department to another within the same institution and even from one nurse to another within the same patient care unit. Because nurses are the epicenter of much of what goes on with patient care throughout the hospital in general and in particular, in intensive care units, it is important to understand how nurse beliefs and attitudes influence associated behaviors.

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This study examined relations between underlying beliefs and background factors through investigation and statistical analyses of the impact of nurse beliefs and influencing variables on unrestricted FP decisions that are made by ICU nurses. Guided by the TPB, findings revealed that beliefs are instrumental to attitudes and background factors are influential. Most importantly the study identified nurse perceptions regarding the impact of FP related to quality of care and patient safety.

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AUTOBIOGRAPHICAL STATEMENT

My educational credentials include a Diploma in Nursing from Regina School of Nursing, Albuquerque, New Mexico, Bachelors of Science in Nursing from Madonna University, Masters of Public Health from University of Michigan and a Post Masters Certification in Nursing Administration from Wayne State University. I am a Fellow in the American Academy of Nursing. Positions I have held include, Vice President, Nursing Service at Samaritan Hospital, Associate Hospital Director and Chief of Nursing at the University of Michigan Health System, Vice President and Chief of Nursing at Henry Ford Health System; Senior Vice President and Chief of Nursing at Hurley Medical Center. Currently I am an Assistant Professor of Nursing at the University of Michigan-Flint Campus.

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