Family Presence During Resuscitation of Adults: The Impact of an Online Learning Module on Critical Care Nurses' Perception and Self-Confidence

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FAMILY PRESENCE DURING RESUSCITATION OF ADULTS: THE IMPACT OF

AN ONLINE LEARNING MODULE ON CRITICAL CARE NURSES'

PERCEPTION AND SELF-CONFIDENCE

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ABSTRACT

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Family presence during resuscitation (FPDR) involves offering family members the option to remain with their loved one who is undergoing life-saving measures. FPDR has been shown to enhance comfort and facilitate grieving, and 90% to 100% of patients and family members support it as an option. However, critical care nurses are not fully supportive of FPDR and approximately only one-third implement it in their care of patients. The perceived risks of FPDR are cited as a primary reason for lack of support and implementation. Yet, the perceived risks have not been proven, while the benefits have been established in research. This demonstrates the importance of education to improve critical care nurses' perception of FPDR.

Few studies have investigated FPDR education with nurses. The few that exist have shown promise in improving perception, and also self-confidence which has been shown to influences nurses' FPDR implementation. Several gaps in the FPDR educational research have been identified; including use of measurement scales without established validity or reliability, restricted sample recruitment focused primarily on emergency department nurses despite the fact 45% of in-hospital resuscitation events occur in critical care settings, and methodological limitations such as the absence of a

control group. Additionally, no research has yet evaluated the potential impact of online learning despite its capability of reaching larger numbers of nurses. Therefore, the purpose of this quasi-experimental study was to evaluate the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR of adult patients.

The frameworks utilized were Change Theory and Social Cognitive Theory to explain the choice of dependent variables and aid in the design of the FPDR online learning module as the independent variable. A two-group, quasi-experimental, pre- and post-test design was used. The sample consisted of critical care nurses ($N = 74$) recruited through online study advertisements facilitated by the American Association of Critical-Care Nurses (AACN). Subjects were randomly assigned to either the intervention group who received the FPDR online learning module or to the control group who received online learning about recent changes in resuscitative care. Established measurement scales were used to evaluate perception and self-confidence in this repeated-measures study. Data was collected online for four weeks and the two-factor, mixed-model factorial ANOVA was used for data analysis. Major findings demonstrated the FPDR online learning module was effective at improving critical care nurses' perception and self-confidence for FPDR. Mean scores in the intervention group increased significantly for both perception and self-confidence ($p < .0005$), while scores did not change significantly for the control group. Study results indicate online learning can improve critical care nurses' perception and self-confidence for FPDR and further strengthen the body of scientific evidence on FPDR education.

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I am also thankful to all of the nurses and nursing students that I have been privileged to work with during my career. They have inspired me to work hard and strive to be better in my teaching and patient care abilities. That leads me to thank all of the patients and family members I have had to honor to care for during my nursing career. They motivated me to always provide the best patient- and family-focused nursing care possible. My nursing experiences caring for patients and their families led me to be passionate about family presence during resuscitation long before I even knew it was a concept.

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CHAPTER 1

INTRODUCTION

Patient- and family-centered care is central to professional nursing practice

(Finkelman & Kenner, 2009). The primary focus of nursing is to promote health, alleviate

suffering, and advocate in the care of individuals, families, and communities. Nurses

must strive to provide holistic care to all persons and in all practice settings. Caring

interpersonal relationships that demonstrate respect for patient and family preferences is

fundamental to nursing practice (American Nurses Association [ANA], 2010). However,

research has shown patient- and family-centered care is not universally upheld by nurses

during times of acute health crises, including times when life-saving measures such as

cardiopulmonary resuscitation (CPR) are implemented. During such times, family

members have traditionally been escorted away from the bedside despite their wishes to

remain present in order to provide support and maintain the connectedness they desire.

Prohibiting their presence at the bedside of their loved one, regardless of their wishes, is

inconsistent with patient- and family-centered care. Family presence during resuscitation

(FPDR) promotes the connectedness desired by patients and families and is a means for

operationalizing patient- and family-centered care during times of acute health crises

(Duran, Oman, Abel, Koziel, & Szymanski, 2007; Ganz & Yoffe, 2012).

Even though FPDR is desired by both patients and families and can promote

positive outcomes such as increased comfort, improved understanding, and facilitation of

the grieving process (Duran et al., 2007), nurses are not fully supportive of FPDR and it

is not commonly implemented at the bedside (Twibell et al., 2008). Nurses have been

deemed instrumental in ensuring FPDR is offered and implemented. Patients and families

are most likely to express their need and desire for FPDR to nurses, and as the patient and family member advocate, nurses are in the unique position to ensure their needs are met (Fulbrook, Albarran, & Latour, 2005; Miller & Stiles, 2009). This is especially relevant to critical care nurses because 45% of cardiac arrest cases among hospitalized adult patients occur in a critical care setting (Morrison et al., 2013). Considering there are an estimated 209,000 people treated for in-hospital cardiac arrest annually in the United States (Go et al., 2013), there are numerous cases of resuscitation in critical care settings and numerous instances where FPDR could be implemented as a component of family-centered care. Yet, research has demonstrated nurses, including critical care nurses, do not fully support nor implement family-centered care or FPDR (Ganz & Yoffe, 2012; MacLean et al., 2003). If nurses are not supportive of FPDR, it is highly likely that it will not be implemented and patient- and family-centered care will not be upheld. It is vital to determine methods capable of increasing rates of FPDR implementation by critical care nurses so they may improve their patient- and family-centered care delivery during acute health crises. Therefore, this study evaluated the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR implementation.

Background and Significance

Patient- and family-centered care is central to nursing. It involves collaborating and partnering with patients of all ages and their families, and should take place in all healthcare settings and at all levels of care (Conway et al., 2006). Core concepts include respect for patient and family choices and perspectives, communication of information to ensure effective decision-making, encouragement of participation in care at the level of choice, and collaboration in the design and delivery of care (Conway et al., 2006). The

Institute of Medicine has emphasized a need for nurses to provide care that is respectful and responsive to individual needs and values (Ganz & Yoffe, 2012). The needs of the patient and family must dictate practice, not the needs of the nurse or healthcare provider (Dill & Gance-Cleveland, 2005). FPDR is a contemporary extension of family-centered care in which families who desire to be present during resuscitation of their loved one are afforded that option. The concept of FPDR is supported by Katharine Kolcaba's Theory of Comfort which deems the promotion of comfort and a peaceful death to be unique contributions of nursing (Kolcaba, 1994). Adult CPR survival rates are only 10% to 18% (Madden & Condon, 2007; Morrison et al., 2013); therefore, a theory focused on comfort and a peaceful death is extremely relevant. The healthcare environment during resuscitation is often rushed, loud, and anxiety-ridden, but FPDR allows the family to comfort to the patient in ways that nurses and other healthcare providers cannot (Meyers et al., 2004). Comfort can be provided when the family member holds the patient's hand or soothes the patient through verbal reminders of their meaning to the family (Kolcaba, 1994; Kolcaba, 2003). Research has also shown family members feel FPDR provides them a source of comfort and peace as well (Meyers et al., 2004) and when a patient is dying the nurse must recognize that the family is also the patient (Hampe, 1975). During resuscitation the primary focus is rightfully on patient care; however, it is often the family who will be affected by the decision to exclude them from the resuscitation event for the rest of their life (Knott & Kee, 2005). Withholding the option of FPDR and separating families is contrary to the definitions of nursing and family-centered care, yet families have traditionally been ushered away from the bedside and confined to a waiting area where they anxiously anticipate news on the survival of their loved one (Knott &

Kee, 2005; York, 2004). FPDR is a shift away from this practice norm; it is a shift towards family-centered care that considers the needs and preferences of the family. Ironically, research has demonstrated the biggest threat to family-centered care implementation, and FPDR by extension, is nurses (Ganz & Yoffe, 2012).

While FPDR is a contemporary concept, family-centered care during other levels of healthcare has seen growing momentum for many decades. Researchers have drawn thought-provoking parallels between maternity care and FPDR (Bassler, 1999; Booth, Woolrich, & Kinsella, 2004; Ganz & Yoffe, 2012; Knott & Kee, 2005). In the 1970's, fathers were not permitted to be present during childbirth due to fears the father would faint or disrupt the delivery process and patient care. Public demands forced reluctant maternity care providers to examine the routine practice of separating the family during the birthing experience (Bassler, 1999). It is similar unsubstantiated fears opponents of FPDR cite; family members may create an emotional or physical disturbance in the care of the patient. Yet, there is no proof in the literature to support such a fear (Halm, 2005), just as there was no literature support for excluding fathers from the delivery room. Perceived risks permeate the minds of nurses and other healthcare providers and create negative beliefs about FPDR (McClement, Fallis, & Pereira, 2009). However, research on topics such as family involvement in critical care rounding (Knott & Kee, 2005), family management of chronic illness (Doyle et al., 1987), and family participation in palliative care (Doyle et al., 1987; Ganz & Yoffe, 2012) demonstrate the desire and ability of families to be a part of patient care.

Another compelling supportive argument is that the public has been encouraged to become trained in CPR and often initiate CPR while awaiting emergency medical

responders. Yet, the family is then separated from the resuscitative care of the patient,

resuscitative care they themselves initiated, upon arrival to the hospital and are directed

to wait outside of the resuscitation room (Booth et al., 2004; Redley & Hood, 1996). CPR

training and the introduction of CPR on popular television shows has generated a public

capable of witnessing CPR on their loved one if they so choose (Doyle et al., 1987;

Halm, 2005; Madden & Condon, 2007; Redley & Hood, 1996; van der Woning, 1997).

Presidential memorandums to the United States public on legal rights to hospital

visitation have also increased public awareness about FPDR as an option. Presidential

statements have described the restriction of visitors as causing a "terrifying experience

for patients [to be] senselessly compounded by indignity and unfairness. And it means

that all too often, people are made to suffer or even to pass away alone, denied the

comfort of companionship in their final moments while a loved one is left worrying and

pacing down the hall" (Obama, 2010). Thus, the public has been enlightened on

resuscitative care by viewing it on television and personally implementing it following

CPR training, and has been encouraged to be a part of it by their President. This has

promoted the examination of routine family member exclusion during CPR based upon

healthcare provider perceptions of what is in the best interests of patients and families.

Examination of this routine exclusion has rendered researchers to declare it a practice that

is "archaic" (Redley & Hood, 1996, p. 147) and "paternalistic" (Axelsson et al., 2010, p.

21). Family-centered care is encouraged in the majority of healthcare settings and events;

one must question why it is considered so controversial during resuscitation. Nurses

encourage families to participate in patient care at the beginning, middle, and end of life;

why should they be excluded during resuscitation events?

FPDR is an evolving topic; one that continues to arouse debate. It first emerged in the literature 25 years ago when Doyle et al. (1987) published a pioneer study that determined families who experienced FPDR were supportive of it. Following this pioneer study, numerous professional organizations have declared their support for FPDR due to published research depicting it as beneficial to family members. Beginning with the Emergency Nurses Association (ENA) in 1993, support for FPDR has mounted and multiple national and international professional organizations have developed policies and position statements in favor of FPDR (American Association of Critical-Care Nurses [AACN], 2010; American College of Emergency Physicians, 2006; American Heart Association [AHA], 2000; Canadian Association of Critical Care Nurses, 2005; ENA, 2010; Henderson & Knapp, 2006; Moons & Norekvål, 2008; Walsh, 2004). Research studies and professional organization position statements have rendered FPDR a well-defined concept. Family presence has been defined as the attendance of family in a location within the patient care area that affords visual and/or physical contact with the patient undergoing resuscitation or invasive procedures (ENA, 2007). Inherent to FPDR, family is defined by the patient and are the individuals, related or non-related, who have a significant relationship with the patient, while resuscitation is the events initiated to sustain life (ENA, 2007).

As FPDR is still a relatively new concept, it continues to evolve; however, these fundamental definitions have been widely accepted. This study focused on FPDR only because research has demonstrated family presence during invasive procedures is distinctly different than FPDR (Dougal, Anderson, Reavy, & Shirazi, 2011; MacLean et al., 2003). Further, FPDR of pediatric patients was not included in this study because

research has also demonstrated FPDR with adults versus children is very different (Lowry, 2012). This study evaluated the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR implementation with adult patients.

Research has shown patients and families overwhelmingly support FPDR as an option (Clark et al., 2005; Halm, 2005; Hodge, & Marshall, 2009). In fact, 90% to 100% of patients and families favor FPDR (Albarran, Moule, Benger, McMahon-Parkes, & Lockyer, 2009; Halm, 2005), viewing it a right of the patient and family because it is helpful to both (Eichhorn et al., 2001; Halm, 2005). The public in general also favors FPDR as demonstrated through public opinion polls by *NBC Dateline* and *USA Today* (Clark et al., 2005). The magnitude of patient and family support for FPDR denotes it an important topic that deserves attention in order to promote better patient- and family-centered care practices during acute health crises and at the end of life. However, nurses continue to have mixed levels of support for FPDR.

Research has shown only approximately one-third of nurses support FPDR (Ellison, 2003; Twibell et al., 2008) and this translates into low levels of practice implementation. MacLean et al. (2003) found 36% of 984 surveyed emergency and critical care nurses had implemented FPDR. Further, emergency department nurses have been found to be significantly more likely to support and implement FPDR than are nurses working in critical care (Ellison, 2003; Twibell et al., 2008), despite the fact that 45% of in-hospital resuscitations occur in critical care settings (Morrison et al., 2013). Potential for family member interference with patient care and risk for emotional trauma to the family (Axelsson et al., 2010; McClement et al., 2009; Meyers et al., 2004) are commonly cited reasons for a lack of FPDR implementation. Research has not supported

such perceived risks (Halm, 2005), but has supported the benefits of FPDR; such as the promotion of closure and facilitation of grieving (Meyers et al., 2004). Yet, negative perceptions persist and adversely influence nurses' support and implementation of FPDR (Twibell et al., 2008).

Additionally, correlational research has demonstrated prior FPDR experience is linked to higher support and implementation rates, perhaps due to improved self-confidence (Twibell et al., 2008). However, nurses who perceive FPDR negatively are unlikely to implement it. Therefore, interventions to improve perception and self-confidence are paramount; one such intervention is education. A limited amount of interventional research on FPDR education has been conducted, yet it has demonstrated a positive impact on the dependent variables under study. For instance, Bassler (1999) found classroom education increased emergency and critical care nurses' intent to offer FPDR from 10.9% to 79.1%. More recently, significant improvement in nursing students' knowledge, perception, and self-confidence for FPDR resulted from classroom education and video simulation (Kantrowitz-Gordon et al., 2012). Education can positively impact nurses' support for FPDR; however, very few studies have been conducted to date and none have investigated online learning as an educational strategy. Additionally, prior FPDR educational research has investigated numerous dependent variables without clear theoretical links, has used various measurement scales without established validity or reliability, and has lacked strength due to methodological issues including reliance solely on one-group designs. This has resulted in difficulty building a solid scientific body of evidence on education as an intervention to increase nurses' support and implementation of FPDR.

Problem Statement

Maintaining patient- and family-centered care is a nursing responsibility. Picking and choosing certain instances to uphold the preferences and needs of patients and families is not consistent with patient- and family-centered care which calls for collaboration at all times and all levels of care (Conway et al., 2006). Attempting to protect the family from what nurses perceive to be a distressing scene (Redley & Hood, 1996), while ignoring the distress they may experience in the waiting room is not in the best interest of families, and separating the family unit is not consistent with the philosophy of nursing (Madden & Condon, 2007). Yet, research shows that during CPR the family is most often separated from the patient (MacLean et al., 2003; Twibell et al., 2008) and thus family-centered care is not implemented. A breakdown in family-centered care delivery is of high significance to nurses because it is in stark contrast to the definition and philosophy of professional nursing (ANA, 2010). Family-centered care, including FPDR, must be a priority of nursing; however, research has shown the biggest threat to their implementation comes from nurses (Ganz & Yoffe, 2012). Nurses with poor perception and self-confidence for FPDR are unlikely to implement it in their care of patients (Twibell et al., 2008). Interventions to improve these variables that influence nurses' implementation of FPDR are vital.

A significant gap in the literature is that all FPDR educational research to date has been conducted face-to-face in classroom or simulation settings which may limit widespread implementation. The use of online learning has not been studied, despite the fact that it can minimize the challenges of classroom-based, face-to-face education of nurses who have high personal and professional demands (DeYoung, 2003; Harrington &

Walker, 2004) and it can be used to educate larger numbers of nurses (Billings & Connors, n.d.; Harrington & Walker, 2004). In this study, an innovative online learning module was developed and its impact on critical care nurses' perception and self-confidence for FPDR was evaluated to address this gap and to add innovation to the growing body of evidence on FPDR education.

Another major gap noted in the FPDR research is a lack of consensus regarding the dependent variables of importance to measure. The majority of research has been conducted using variables without a theoretical basis (Twibell et al., 2008). Measurement of different variables such as attitude, belief, or support makes it difficult to formulate or refine interventions. Further, due to a lack of consensus on the variables of importance, uniformity in measurement scales has also been lacking, making it difficult to compile a sound body of evidence (Twibell et al., 2008). Many researchers have developed their own measurement scales, and often they have been lacking validity or reliability assessments (Redley, Botti, & Duke, 2004; Twibell et al., 2008). Use of valid and reliable measurement scales and evaluation of variables grounded in theory and linked to the FPDR literature is imperative to advance the science of FPDR research (Waltz, Strickland, & Lenz, 2010). Perception and self-confidence have been found to influence nurses' implementation of FPDR and recent research has begun to focus on these variables (Chapman, Watkins, Bushby, & Combs, 2011; Kantrowitz-Gordon et al., 2012; Twibell et al., 2008). Specific measures, such as the perception of FPDR risks and benefits, gives structure to the content of educational interventions, as well as clear delineation of the dependent variable for measurement purposes. Likewise, the measure of self-confidence and its link to clinical experience (Axelsson et al., 2010) helps

promote inclusion of educational interventions that provide experiential practice with patient situations. This study evaluated the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR using valid and reliable measurement scales grounded in theory and the literature in order to address this gap.

Much of the FPDR research has been confined to the emergency department setting (McClement et al., 2009; Twibell et al., 2008), and little has been conducted in critical care settings where resuscitation also often occurs (Morrison et al., 2013). Research on FPDR implementation rates outside of the emergency department setting is lacking and FPDR educational research outside of this setting is also very limited. As patient- and family-centered care is a fundamental part of the definition of nursing, it must be enacted in all patient care settings. It is imperative nurses from other acute care settings, most notably the critical care setting due to its high occurrence of CPR, support and implement FPDR if the situation arises. This study addressed this gap by focusing on critical care nurses' perception and self-confidence for FPDR.

Research on FPDR education has also lacked the methodological rigor needed to draw conclusions on specific educational strategy effectiveness. All of the research conducted thus far has utilized a one-group, pre- and post-test design without the use of a control group to determine if changes were due to the educational intervention or the effect of time or repeat testing (Polit & Beck, 2004). Effective control measures and random assignment have not been employed to allow for inferences about causality (Polit & Beck, 2004). In fact, some studies did not determine if the same subjects took both the pre- and post-test and none have utilized random assignment to a control group to determine effects of sensitization from repeat testing (Polit & Beck, 2004). This study

aimed to increase the methodological rigor in FPDR educational research by using a control group, improving control of variables, and employing random assignment to determine the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR with adult patients.

Purpose Statement

The purpose of this study was to evaluate the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR implementation with adult patients. A quasi-experimental, pre- and post-test design with random assignment to an intervention or control group was utilized. This study is innovative because it was the first to evaluate online learning as an intervention to improve nurses' perception and self-confidence for FPDR. In addition, to strengthen the literature evidence on FPDR education this study addressed the significant gaps noted in the literature by measuring theoretically grounded dependent variables with valid and reliable scales and recruiting a sample that consisted of nurses from critical care settings.

Summary and Organization of Remaining Chapters

This introductory chapter presented FPDR as a topic significant to patients and families. FPDR is also significant to the profession of nursing as a component of patient- and family-centered care. The need for interventions to improve critical care nurses' perception and self-confidence for FPDR is evident and education is one such intervention. However, there are significant gaps in the FPDR education research. Most notably, there exists very little research on FPDR education and none specifically on the use of online learning. This study's intent to address such gaps was presented.

Chapter 2 provides a comprehensive review of the literature on FPDR; including the perspectives of patients, family members, healthcare providers, and nurses. Interventional research using FPDR education is also discussed in detail. Chapter 3 describes the theoretical frameworks that guided the study design, choice of variables, and creation of the online learning module. Chapter 4 outlines the study methodology, while Chapter 5 presents the study results. Chapter 6 is a detailed discussion of the findings with recommendations for nursing practice and further research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter provides a comprehensive review of the literature related to FPDR of adult patients. To date, research on FPDR has included the perceptions of patients, family members, healthcare providers, and nurses, current implementation rates, and interventions to improve perception or other measures. Numerous studies were found to focus on multiple sample populations and these findings are separated by sample type to provide a better understanding of each population. See Appendix A for a literature review matrix summarizing complete findings of all studies.

This chapter first presents the perceptions of patients and families as their views are central to the provision of nursing care that is patient- and family-centered (Mitchell, Chaboyer, Burmeister, & Foster, 2009). Next, research on the perceptions of healthcare providers is appraised, leading to presentation of research focused solely on nurse perceptions and implementation rates of FPDR. Nurse-focused research is specifically emphasized because family-centered care has been deemed essential to nursing and thus is a component of nursing education, while physician education is more science-oriented (Axelsson et al., 2010). The majority of nurse-focused research has been conducted to determine perceptions, attitudes, beliefs, preferences, or some other similar concept (Twibell et al., 2008). Within such studies, rates of actual or intended FPDR implementation are also often included. Additionally, much of the FPDR research has focused on the cited barriers to support; namely the risks perceived. The unsupported perceived risks are reviewed, along with research findings on the benefits of FPDR. Next, correlational research on demographic and professional attribute factors that may

influence nurses' support for FPDR is presented. The limited amount of research conducted on interventions to improve nurses' support for FPDR is then detailed at length. Demonstration of the gaps in the literature and the need for improved methodological rigor are highlighted as they were used to guide this study.

Literature Search Procedure

This review of related literature was conducted primarily by use of the Cumulative Index to Nursing and Allied Health (CINAHL) index. Search terms included "family presence", "resuscitation", "family presence during resuscitation", "facilitated family presence", and "family witnessed resuscitation". The published body of evidence on FPDR did not begin until 1987 and remained sparse in the beginning of the 1990's. There remains a limited amount of evidence for various populations under study, such as research on the patient perspective, and thus no limitations related to date were set in the search. Publications not written in English were eliminated; however, the majority were available in English. Search methods also included a manual review of the *Journal of Emergency Nursing*, as the ENA has published the greatest amount of FPDR research and literature. Additionally, a manual search of reference lists from FPDR literature reviews (Clark et al., 2005; ENA, 2007; Halm, 2005; Hodge et al., 2009; Howlett, Alexander, & Tsuchiya, 2010; Moreland, 2005; van der Woning, 1997; Walker, 2007) was conducted.

Articles noted to be discussions or conceptual analyses were not included in this review of related literature, as the primary focus was on research findings. Studies selected for inclusion in this review pertain to FPDR, and research solely on family presence during invasive procedures was excluded. These have been determined to be

two very different concepts (Dougal et al., 2011) and this study focused on FPDR. However, some studies addressed both FPDR and family presence during invasive procedures. In instances where the two were measured separately, discussion in this review pertains solely to findings about FPDR. In studies where FPDR and family presence during invasive procedures were not differentiated, the results are referred to as family presence in this review. Research focused solely on the pediatric patient population was also excluded because FPDR with adults versus parental presence with children has been determined to be different (Lowry, 2012) and the emphasis of this study was on FPDR of adult patients. Lastly, research focused solely on trauma resuscitations was excluded because trauma resuscitations occur in emergency department settings and involve distinctly different care measures than those involved in cardiopulmonary arrest care (Helmer, Smith, Dort, Shapiro, & Katan, 2000). This study focused on FPDR of adult patients in the critical care setting.

<div align="center">

Perceptions of FPDR

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The perspectives of patients, family members, healthcare providers, and nurses have all been studied to some extent. This section presents the findings from each population separately. Perspectives on the cited risks are addressed in detail as they are a major barrier to FPDR implementation. Additionally, demographic and professional attribute factors that either hinder or augment support for FPDR have been investigated.

The Patient Perspective

It is essential to capture patients' wishes related to FPDR because the current healthcare environment emphasizes patient-centered care in which patient values and

needs are of utmost importance (Hughes, 2008). However, few studies have been

conducted with patients due to the fact that CPR outcomes are usually negative, with only

10% to 18% of patients surviving CPR to discharge (Madden & Condon, 2007; Morrison

et al., 2013; Redley et al., 2004). In fact, sample inclusion criteria for the majority of

patient-focused studies did not require prior personal experience with resuscitation or

FPDR. Rather, high acuity patients in emergency or critical care settings have been

studied in order to reflect the view of patients who are acutely ill and achieve adequate

sample sizes.

All patient-focused research to date has demonstrated a positive patient view of

FPDR and a belief that it should be offered to family members as an option (Albarran et

al., 2009; Duran et al., 2007; Eichhorn et al., 2001; McMahon-Parkes, Moule, Benger, &

Albarran, 2009; Robinson, Mackenzie-Ross, Hewson, Egleston, & Prevost, 1998). The

strongest data was gleaned from Albarran et al. (2009) who conducted a pilot study to

compare the FPDR views and preferences of recently resuscitated ($n = 21$) and non-

resuscitated ($n = 40$) patients admitted with emergent health ailments. Results

demonstrated patients favor FPDR, with no statistically significant differences between

resuscitated and non-resuscitated patients. In fact, 90% of recently resuscitated patients

and 88% of non-resuscitated patients felt family members should be given the option for

FPDR and both felt FPDR could be beneficial to the family. Additionally, patients in both

groups desired to be asked about their preferences for FPDR upon admission (Albarran et

al., 2009).

The other quantitative study that investigated patients also investigated the

attitudes of family members and healthcare providers. Duran et al. (2007) found patients

($n = 62$) possessed an overall positive attitude towards family presence. However, study inclusion did not depend upon prior family presence experience, unstable patients were excluded, and it was not stated whether any of the patients had previously undergone resuscitation. It was reported 29% had prior family presence experience, which may or may not have included FPDR, and attitude scores did not significantly differ based upon prior family presence experience (Duran et al., 2007). No further results from the 52-item measurement tool or any qualitative data were presented on patient attitudes.

Three studies provided qualitative data on the patient perspective. A study conducted by McMahon-Parkes et al. (2009) was the qualitative counterpart to the quantitative study by Albarran et al. (2007). Additionally, Eichhorn et al. (2001) interviewed patients who had experienced family presence during an invasive procedure in the emergency department ($n = 8$) and who had experienced FPDR in a critical care unit ($n = 1$) to determine their views. Unfortunately, only one patient was able to give insight on FPDR as the mortality rate following CPR was found to be 90% during the study (Eichhorn et al., 2001). Lastly, Robinson et al. (1998) conducted an experimental study to determine family member outcomes following FPDR, but also interviewed the three surviving patients for their opinions. Qualitative data from all three studies revealed patients feel family members should be offered FPDR as an option. According to patients, family members should be able to make the decision for FPDR and there should be no barriers to their presence should they decide to remain at the bedside (McMahon-Parkes et al., 2009). Patients viewed family presence as a right of the patient because it provides a sense of comfort, a feeling of being loved and supported, and helps patients stay connected to their family. Patients felt supported by having their family member

present to act as their advocate, humanize them, and remind healthcare providers of their

"personhood" (Eichhorn et al., 2001, p. 52). Patients also believed FPDR has the

potential to influence their survival by instilling courage and giving support (McMahon-

Parkes et al., 2009). Additionally, FPDR can be beneficial to the family member by

assisting with coping, dispelling misconceptions, reducing anxiety, and providing closure

(Eichhorn et al., 2001; McMahon-Parkes et al., 2009). In all of the studies, patients were

comfortable having family present at the bedside and were not concerned over the

sharing of confidential matters (Albarran et al., 2009; McMahon-Parkes et al., 2009;

Robinson et al., 1998). Patients expressed that the healthcare team must be able to

function effectively with patient care as the primary focus and healthcare providers

should adequately inform families of their expectations at the bedside (Eichhorn et al.,

2001; McMahon-Parkes et al., 2009). Further, family should be protected by the

healthcare team and either cautioned or removed during distressing or upsetting

procedures (McMahon-Parkes et al., 2009).

Though a small number of studies have focused on the patient perspective, they

have demonstrated patient support for FPDR. Patient-focused research has shown

patients believe FPDR should be an option for family members. Further study on the

patient perspective is warranted and would provide more evidence to support the need for

nurses to implement FPDR as a component of patient-centered care.

The Family Member Perspective

Family preferences and outcomes have been studied more extensively, beginning

with Doyle et al. (1987) who pioneered FPDR research after two instances of family

demands for FPDR in an emergency department within the United States. The emergency

department chaplain then surveyed family members of patients and 72% preferred having

the option for FPDR, which sparked the start of a FPDR program. After the FPDR

program was initiated, Doyle et al. (1987) studied family members' FPDR experiences

and preferences, as well as those of healthcare providers. Results revealed 94% of family

members ($n = 51$) would participate in FPDR again, with 35% overtly asserting that

FPDR is their right. Additionally, 100% felt the healthcare team did everything possible

to save their loved one and 76% believed FPDR made their adjustment to the death and

grieving easier. Family member statements such as "couldn't imagine not being a part of

it" (Doyle et al., 1987, p. 674) and no documented difference in patient outcomes are

major reasons why a FPDR program continues in this emergency department. Years later,

Hanson and Strawer (1992) recounted this FPDR program, citing no incidences of

disruptive behavior or family interference and concluding with "it is hard for us to

understand that this practice is seldom considered" (p. 106).

Since this pioneer study, researchers have continued to investigate family member

perceptions, preferences, and outcomes using experimental, descriptive, and qualitative

designs. Descriptive research in the United States, in addition to that by Doyle et al.

(1987), has demonstrated family member support for FPDR. Duran et al. (2007) found

family members ($n = 72$) of patients in emergency department and critical care settings

had an overall positive attitude towards family presence. Attitude was significantly more

positive among those who previously participated in family presence, with 89% stating it

was helpful to them and 95% expressing they would do it again if in a similar situation

(Duran et al., 2007). Meyers et al. (2004) surveyed family members and healthcare

providers who partook in family presence in an emergency department to determine their

attitudes and perceptions. Results of the researcher-developed survey revealed 97.5% of

family members ($n = 39$) felt they have a right to be present and would do it again, 100%

felt it was helpful for them, and 95% felt it helped the patient. Researchers determined

there were no differences in scores dependent upon experience with FPDR or family

presence during invasive procedures and reported all scores together (Meyers et al.,

2004). From a different perspective, Meyers, Eichhorn, and Guzzetta (1998) studied

family members ($N = 25$) whose loved ones had unsuccessful resuscitation attempts in an

emergency department where the option of FPDR was not allowed in order to determine

their FPDR desires and beliefs. Results demonstrated 96% felt families should have the

option of FPDR, 80% felt they would have wanted to witness the resuscitation, and 64%

felt it would have helped in their sorrow. Qualitative data was also collected by Meyers et

al. (1998) and Meyers et al. (2004) and is presented below with other qualitative studies

on family perceptions.

Descriptive studies on the international forefront have also demonstrated family

support for FPDR. It has been found that 73.1% of family members in Singapore (Ong,

Chung, & Mei, 2007) and 79.7% of family members in Hong Kong (Leung & Chow,

2012) support FPDR. Yet, healthcare provider support in these countries is significantly

lower at 10.6% to 12.9% (Leung & Chow, 2012; Ong et al., 2007); signifying family

support for FPDR may be universal, whereas healthcare provider views may be

influenced by culture or some other factor.

Two experimental studies were found to each randomly assign family members of

patients undergoing resuscitation in an emergency department to either an intervention

group which was given the option for FPDR or a control group that was escorted to a traditional family waiting room and not permitted to experience FPDR (Holzhauser, Finucane, & DeVries, 2006; Robinson et al., 1998). Robinson et al. (1998) conducted a pilot study to determine the psychological effects of FPDR on bereaved family members; however, the study was terminated early because of risks to the randomization that resulted when staff became convinced of the psychological benefits of FPDR. Therefore, total sample size ($N = 18$) was small and none of the psychological measures reached significance. However, there was no increase in family member distress with FPDR and the intervention group had lower grief scores than the control group at nine months. Additionally, there were no disruptions in care and 100% of family members were content with their decision for FPDR (Robinson et al., 1998). Holzhauser et al. (2006) was able to gain a larger sample (intervention $n = 58$ and control $n = 30$) capable of producing significant findings. Using a dichotomous researcher-developed measurement tool via telephone with family members at one month after the event, researchers found 100% of family members in the intervention group were glad they partook in FPDR and 67% of the control group would have preferred FPDR. When asked if FPDR helped them to better come to terms with the outcome, 96% of the intervention group felt FPDR assisted them, while 71.2% of the control group felt FPDR would have better helped them. Further, 85% of those who partook in FPDR where the patient survived thought their presence helped the patient (Holzhauser et al., 2006).

In addition to the qualitative data obtained in the mixed method studies by Meyers et al. (1998) and Meyers et al. (2004), one qualitative study was found to be dedicated to family member experiences with FPDR in the emergency department (Hung & Pang,

2010). Qualitative findings such as "they would have had to call security to keep me out" (Meyers et al., 2004, p. 67) and "patients are not hospital property…families need to be given an option and a choice" (Meyers et al., 1998, p. 403) demonstrate family members desire for FPDR. Findings also revealed family felt FPDR was helpful to the patient and to themselves (Hung & Pang, 2010), and gave families a sense of empowerment from being involved in their loved one's care (Meyers et al., 2004). Powerful family member statements revealed FPDR "lessened helplessness" and "minimized the agony" (Meyers et al., 2004, p. 67). Additionally, families felt it was very important to be present for final moments to say goodbye and gain a sense of closure, and that FPDR was a spiritual experience for them (Meyers et al., 1998; Meyers et al., 2004). Families expressed a longing to maintain patient-family connectedness, even during resuscitation (Hung & Pang, 2010). Family members felt the experience was not distressing for them, but that it is important to screen family to ensure they can control their emotions and actions (Meyers et al., 2004) so as not to hinder patient care (Hung & Pang, 2010; Meyers et al., 1998).

The research conducted with family members has shown they prefer having the option of FPDR, and it can assist in coping and grieving when resuscitations are unsuccessful. Continued research should focus on family member preferences, as well as family member outcomes following FPDR experiences. However, it is clear that with patient and family member support for FPDR as high as 90% to 100% and no negative outcomes noted, nurses and healthcare providers must work to meet patient and family needs. To uphold patient- and family-centered care, the needs and preferences of patients and families must be considered and met.

The Healthcare Provider Perspective

Despite evidence that patients and families desire FPDR, much of the research on healthcare provider and nurse perceptions and attitudes have met with mixed results and therefore sub-optimal rates of FPDR implementation. As resuscitation is interdisciplinary in nature (Soar et al., 2010), some researchers have studied various healthcare providers whereas other researchers have recognized FPDR as significant to nursing (Axelsson et al., 2010; Moreland, 2005) and thus have made nurses their sole focus. Studies focused on healthcare providers are presented first.

Research on healthcare provider perspectives has been either descriptive or correlational in nature and the majority has been conducted outside of the United States. International research has revealed healthcare provider views vary greatly depending on country and culture. Support was lowest in Eastern Europe at 9% (Demir, 2008) and Asia at 10.6% to 12.9% (Leung & Chow, 2012; Ong et al., 2007). Researchers have postulated this may be due to a regional lack of education on the topic, lack of exposure to professional organizations and their position statements in support of FPDR, or lack of exposure to research and literature on the topic (Demir, 2008). Absence of hospital policies or staff education may also contribute to low levels of FPDR support (Leung & Chow, 2012; Ong et al., 2007). Additionally, lack of support may be due to cultural differences affecting healthcare provider beliefs or the emotional reactions of the families for whom they provide care (Demir, 2008).

Healthcare provider support has been considerably higher in Australia, where more literature and research on the topic is available. Redley and Hood (1996) found

62% of nurses and physicians (*N* = 133) from six emergency departments would consider FPDR under controlled circumstances and 14% felt family should always be offered FPDR. Interestingly, 68% of this sample had already experienced FPDR without formal policy at the time of the survey (Redley & Hood, 1996), while only 8.4% had previous FPDR experience in Turkey where support for FPDR is lowest (Demir, 2008). This suggests experience with FPDR may improve acceptance. In another Australian emergency department, 61.4% of surveyed nurses and physicians (*N* = 114) perceived FPDR to be a right of family members. Correlations indicated healthcare providers with prior FPDR experience (47%) perceived it more positively and also had higher self-confidence in their ability to implement it with families (Chapman et al., 2011). Although cultural differences may impact provider support for FPDR; support may also vary due to availability of research and literature which is more prevalent in Australia than in Asia and Eastern Europe. Chapman et al. (2011) found 68% of their sample were members of a professional organization that disseminates FPDR literature and this may account for improved acceptance in this country. FPDR is also implemented at a higher rate in Western Europe. In the United Kingdom, 79% of 162 emergency departments were found to allow FPDR of adult patients, with half of these emergency departments requiring family to request FPDR for it to be initiated (Booth et al., 2004). International healthcare provider support for FPDR can vary depending upon the country and also can vary widely within the United States as well.

In the United States, healthcare provider support for FPDR has been variable and ranges from 22% to 76% (Basol, Ohman, Simones, & Skillings, 2009; Doyle et al., 1987; Duran et al., 2007; McClenathan, Torrington, & Uyehara, 2002; Meyers et al., 2004). In a

brief survey, Doyle et al. (1987) found 71% of emergency department nurses, physicians, and clerks ($n = 21$) endorsed FPDR after its implementation despite concern over potential for family trauma and increased provider stress because "the patient being resuscitated seemed more human" (p. 675). Similarly, Meyers et al. (2004) found 76% of emergency department nurses and physicians ($n = 96$) who experienced FPDR supported it; stating their performance (84%) and the outcome (97%) would have been the same with or without FPDR. Between disciplines, nurse support was significantly higher than that of physicians. Qualitative comments included perceptions of the risks and benefits, as well as implementation recommendations (Meyers et al., 2004). A survey distributed by McClenathan et al. (2002) at an American College of Chest Physicians conference yielded the lowest level of FPDR support at 22%, but it is important to note the sample ($N = 554$) primarily consisted of physicians. Support for FPDR was highest in the Midwest United States and researchers speculated this could be due to the fact that the first and longest standing FPDR program is in the Midwest, contributing to increased acceptance in this region (McClenathan et al., 2002). Duran et al. (2007) found 54% of emergency department and critical care nurses, physicians, and respiratory therapists ($n = 202$) supported FPDR, with nurses more supportive than physicians. Healthcare providers with prior FPDR experience were found to be more supportive than those without prior experience ($p < .001$). Qualitative data included perceived risks and benefits and the need for an individualized approach (Duran et al., 2007). Basol et al. (2009) investigated the family presence attitudes of healthcare providers ($N = 625$); including nurses, advanced practice nurses, physicians, respiratory therapists, management, spiritual care providers, and orderlies across multiple settings in one healthcare facility. Researchers found 48.8%

had prior experience with FPDR and 61.3% were in support of a FPDR policy. Correlations revealed higher support among healthcare providers with specialty certification. Additionally, healthcare providers employed in emergency department and critical care settings were more supportive than those employed in lower acuity areas; however, differences between emergency department and critical care providers were not presented. Qualitative data demonstrated mixed opinions as evidenced through comments such as "if there is support for this concept, there should be more psychologists and social workers to treat the dysfunctional families" and "it is a step toward 'human'-based healthcare" (Basol et al., 2009, p. 241-242).

Descriptive and correlational research, as well as qualitative comments, has shown mixed levels of healthcare provider support for FPDR. Findings demonstrate providers with FPDR experience are more likely to be supportive of it than those without such experience. It is also evident that the majority of research has been conducted within the emergency department setting, and has less commonly been conducted in critical care or other acute care settings. Therefore, the views of healthcare providers who specifically work within critical care settings are unclear and require further investigation. Additionally, study findings have revealed nurses are likely to be more supportive of FPDR than physicians; therefore, research has been conducted with a sole focus on nurses' FPDR perspectives.

The Nurse Perspective

Nurses' perceptions and implementation rates of FPDR have been studied in greater detail; perhaps due to nursing professional organization support and focus on the

topic or due to the higher emphasis on family-centered care in nursing than in medicine (Axelsson et al., 2010). A large portion of nurse-focused research has occurred outside of the United States and revealed culture or other factors that vary by region may influence nurses' perception and implementation of FPDR. The smaller quantity of research conducted in the United States has also shown mixed levels of support predominate.

The majority of international studies have used the same survey (Fulbrook et al., 2005) to measure nurses' FPDR attitudes and experiences, making comparisons between countries possible. Fulbrook et al. (2005) conducted descriptive and correlational research with nurses ($N = 124$) attending a critical care conference in France and found 46.8% had prior experience with FPDR, but only 20.7% had actually invited the family to be present. Overall attitudes were not favorable, with 37.9% agreeing family should be offered FPDR as an option. Nurses working in clinical practice scored lower than those in management, research, and education. Further, nurses working in critical care were less likely to want FPDR than were nurses working in other areas such as the emergency department (Fulbrook et al., 2005). Similarly, Axelsson et al. (2010) distributed the survey to nurses ($N = 411$) attending a cardiovascular nursing conference in Europe and found implementation of FPDR more common in the United Kingdom (52.9%) and Ireland (58.9%) than in Norway (34.8%), and rates of implementation correlated with scores on the attitude survey. Significant correlations to attitude included practice area and years of experience, with non-clinical and more experienced nurses having higher support (Axelsson et al., 2010). In Germany, only 17.5% of critical care nurses ($N = 166$) agreed families should always have the option of FPDR and 54.9% felt nurses do not want FPDR at all. Qualitative data indicated nurses may be more supportive of FPDR if it

is individualized and dependent on the situation (Köberich, Kaltwasser, Rothaug, & Albarran, 2010). Meanwhile, nurses in Turkey had extremely low rates of FPDR acceptance, with 69.1% of critical care nurses ($N = 238$) (Badir & Sepit, 2007) and 91.1% of emergency department and critical care nurses ($N = 135$) (Güneş & Zaybak, 2009) against FPDR. This coincided with low rates of FPDR experience in Turkey, raising the question of whether perception lowers the implementation rate, or whether lack of experience through implementation lowers perceptions. The Fulbrook et al. (2005) survey was also used in one study outside of Europe. Ganz and Yoffe (2012) studied Israeli critical care nurses' ($N = 96$) attitudes towards FPDR and found 81.4% felt FPDR was unacceptable, and only 20% had prior experience with FPDR. Researchers found a correlation between higher levels of perceived risks and negative perceptions of FPDR. Researchers declared these results similar to those in other non-Western countries indicating culture may play a role, yet also noted that in such countries there is no professional organization support for FPDR (Ganz & Yoffe, 2012).

International research using other measurement tools has also demonstrated region may impact nurses' support. In Ireland, Madden and Condon (2007) used a scale developed by the ENA and found 58.9% of emergency department nurses ($N = 90$) had taken family to the bedside during resuscitation in the past year, and an additional 17.8% would do so if the opportunity arose. This yielded a total of 76.7% in support of FPDR. Researchers also found 96.6% felt a greater understanding of the benefits of FPDR is a facilitator to increasing its implementation by nurses (Madden & Condon, 2007); indicating education may assist in improving perceptions. In Canada, Fallis, McClement, and Pereira (2008) used a measurement tool created by MacLean et al. (2003) to

determine the perspectives and practices of Canadian critical care nurses ($N = 450$). In this study, 32.5% had taken family to the bedside during resuscitation in the past year and another 32.5% would do so if the opportunity arose. Others preferred to have a written policy in place prior to taking family to the bedside, but only 8% reported working in a facility with a FPDR policy. Again, prior FPDR experience positively correlated with a more supportive attitude (Fallis et al., 2008). The qualitative counterpart to this study published by McClement et al. (2009) revealed the risks and benefits Canadian critical care nurses perceive. Nurses also expressed personal feelings in such statements as "I hope there is someone I love with me when I die and not a bunch of caring strangers…they are still strangers" and "What kind of message are we giving? Death is a spectator sport? Bring the whole family?" (McClement et al., 2009, p. 235). Such statements confirm mixed and charged emotions surround nurses' perception of FPDR.

Mixed levels of support have also been noted in the United States. MacLean et al. (2003) surveyed members of the ENA and AACN to determine emergency department and critical care nurses ($N = 984$) preferences and practices with respect to FPDR and family presence during invasive procedures. Researchers found 36% had implemented FPDR in the preceding year and 21% would implement it if the opportunity arose. This indicates a total of 57% supportive of FPDR; however, differences between emergency department and critical care nurses were not described. Though these rates were lower than noted in Canada (Fallis et al. 2008), 31% of nurses in the United States reported family members had asked them for FPDR a mean of three times in the preceding year (MacLean et al., 2003), whereas in Canada just 18.5% of nurses reported being asked for FPDR (Fallis et al., 2008). This demonstrates the United States public may be more

familiar with FPDR, while nurses in the United States are not implementing FPDR at rates as high as in Canada. Several researchers have noted the presence of FPDR policy may improve implementation rates (Basol et al., 2009; Knott & Kee, 2005; Lowry, 2012); however, only 5% of nurses in this national sample indicated they worked at a facility with a FPDR policy (MacLean et al., 2003).

Two studies (Ellison, 2003; Twibell et al., 2008) were found to include nurses from outside of the emergency department and critical care settings, and both sought correlations to work setting. Ellison (2003) conducted descriptive and correlational research to determine nurses' attitudes towards family presence and factors that may impact their attitude. Nurses ($N = 208$) from various units (critical care, emergency department, and medical-surgical units) and positions (58% staff nurses and the remainder in management or education) within a New Jersey hospital, as well as members of the New Jersey ENA were surveyed using a measurement tool created by the ENA. Research revealed only 31.3% would allow FPDR. Significant positive correlations included higher level of education, specialty certification (with the majority specialized in emergency nursing), and clinical area of practice (emergency department). Qualitative data confirmed the numerous risks nurses perceive, which may be due to only 4% having received any prior education on family presence (Ellison, 2003). Twibell et al. (2008) addressed the fact that prior FPDR research had studied numerous dependent variables such as attitude, belief, or opinion without a clear conceptual basis or valid measurement scales by creating and testing two scales specifically designed to measure nurses' perception and self-confidence. Researchers conducted descriptive and correlational research on nurses ($N = 375$) from multiple units (44% inpatient non-critical care, 36%

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critical care, 6% emergency department, and 7% outpatient) within a United States

hospital and found 67.7% had never invited FPDR and only 7.5% had invited it five

times or more in the past (Twibell et al., 2008). Multiple correlations were identified in

the research; the strongest of which was the positive correlation between prior FPDR

experience and positive perception and self-confidence scores. Perception and self-

confidence were also better amongst nurses who belonged to a professional organization,

achieved certification, and worked in the emergency department. Twibell et al. (2008)

concluded FPDR remains controversial, but increasing exposure to FPDR either through

experience or education may improve nurses' perception and self-confidence.

Qualitative research has also revealed mixed opinions amongst nurses in the

United States. Miller and Stiles (2009) recruited nurse participants through ENA and

AACN networks and found nurses viewed family presence as a positive experience that

allows for a connection to be formed with the family. At the same time, nurses stated

experience is required for nurses to become receptive of family presence. Knott and Kee

(2005) studied nurses from various acute care settings and found their primary concern

was family member interference or distraction to the healthcare team, while others

supported FPDR as it assists family decision making. Those in support of FPDR insisted

there be a support person dedicated solely to ensuring the needs of the family are met. In

fact, a dedicated support person is fundamental at the very hospital where the FPDR

movement started. According to Lowry (2012), the FPDR policy remains in place in this

hospital emergency department 25 years later and a major component is to have a support

person ready and waiting for the family. Emergency department nurses in this study were

supportive of FPDR describing it as "just part of looking at the whole person and treating the family" (Lowry, 2012, p. 331).

Quantitative and qualitative evidence has revealed nurses are not uniformly supportive of FPDR and thus do not routinely implement it in their practice. Yet, nurses with FPDR experience and firsthand knowledge of its benefits have slowly adapted to practice change. Emergency department nurses have been found to be the most supportive of FPDR and there is a need to improve nurse support in other clinical areas, including critical care. Family members perceive nurses as being more accessible than physicians. For this reason, they are more likely to ask a nurse to take them to the bedside during their loved one's resuscitation (Moreland, 2005). In order to uphold family-centered care and meet the needs of families in crisis, FPDR must become a component of nurses' clinical practice especially in settings where resuscitation is more common.

Perceived Risks and Benefits

Nurse and healthcare provider support for FPDR is influenced by the risks and benefits perceived (McClement et al., 2009). The higher the perceived risks and lower the perceived benefits, the less support for FPDR and vice versa (Twibell et al., 2008). Therefore, the risks and benefits of FPDR perceived have been studied at length. This research provides information to aid in understanding the reasons nurses may or may not support FPDR, and can aid in the creation of FPDR educational intervention content.

The most frequently cited risks of FPDR include: breaches in patient privacy and confidentiality (Axelsson et al., 2010; Badir & Sepit, 2007; Bassler, 1999; Fulbrook et al., 2005; Güneş & Zaybak, 2009; Holzhauser & Finucane, 2007; Köberich et al., 2010;

MacLean et al., 2003; Mian, Warchal, Whitney, Fitzmaurice, & Tancredi, 2007),

potential for family interference with patient care (Axelsson et al., 2010; Basol et al.,

2009; Booth et al., 2004; Demir, 2008; Ellison, 2003; Knott & Kee, 2005; Köberich et al.,

2010; Madden & Condon, 2007; McClement et al., 2009; Meyers et al., 2004; Miller &

Stiles, 2009; Nykiel et al., 2011), increased emotional distress and psychological trauma

to the family (Basol et al., 2009; Booth et al., 2004; Davidson, Buenavista, Hobbs, &

Kracht, 2011; Doyle et al., 1987; Duran et al., 2007; Ellison, 2003; Fernandez, Compton,

Jones, & Velilla, 2009; Fulbrook et al., 2005; Ganz & Yoffe, 2012; Knott & Kee, 2005;

Lowry, 2012; MacLean et al., 2003; McClenathan et al., 2002; Meyers et al., 2004; Mian

et al., 2007; Miller & Stiles, 2009; Nykiel et al., 2011; Redley & Hood, 1996), impaired

concentration and performance of the resuscitation team either due to distraction or

anxiety from being observed (Axelsson et al., 2010; Basol et al., 2009; Bassler, 1999;

Booth et al., 2004; Doyle et al., 1987; Duran et al., 2007; Ellison, 2003; Fernandez et al.,

2009; Holzhauser & Finucane, 2008; Knott & Kee, 2005; Lowry, 2012; MacLean et al.,

2003; McClement et al., 2009; McClenathan et al., 2002; Meyers et al., 2004; Mian et al.,

2007; Miller & Stiles, 2009; Nykiel et al., 2011), prolonged duration of the resuscitation

attempt for the benefit of the family (Axelsson et al., 2010; Badir & Sepit, 2007; Demir,

2008; Fernandez et al., 2009; Fulbrook et al., 2005; Köberich et al., 2010; Meyers et al.,

2004; Nykiel et al., 2011), increased risk for litigation and legal repercussions (Booth et

al., 2004; Demir, 2008; Ellison, 2003; Fulbrook et al., 2005; Güneş & Zaybak, 2009;

Holzhauser & Finucane, 2007; Lowry, 2012; MacLean et al., 2003; Madden & Condon,

2007; McClement et al., 2009; McClenathan et al., 2002; Meyers et al., 2004; Mian et al.,

2007; Miller & Stiles, 2009), forging an emotional connection to the patient or family

which humanizes the patient leading to increased healthcare provider stress (Critchell &

Marik, 2007; Davidson et al., 2011; Doyle et al., 1987), and risk for offending the family

with unprofessional language or behavior by the resuscitation team (Knott & Kee, 2005;

Miller & Stiles, 2009; Redley & Hood, 1996).

Research has dispelled these perceived risks. Patients have reported they are not

concerned over breaks in their confidentiality during performance of life-saving measures

(Albarran et al., 2009; McMahon-Parkes et al., 2009). FPDR programs have reported no

instances of family interference with patient care (Hanson & Strawser, 1992; Lowry,

2012; Nykiel et al., 2011). Experimental studies have found no immediate or lingering

emotional trauma to family members (Holzhauser et al., 2006; Robinson et al., 1998). In

fact, Holzhauser and Finucane (2007) found providers who denied family members the

experience of FPDR reported the family paced outside of the resuscitation room and

became more agitated and angry, while those who allowed the family to stay and

experience FPDR reported there were no problems and it was a positive experience that

benefitted the patient and calmed the family. Doyle et al. (1987) found no difference in

patient outcome regardless of FPDR implementation and Meyers et al. (2004) found 97%

of healthcare providers felt patient outcomes would have been the same with or without

FPDR; both signifying the performance of the resuscitation team is not hindered by

FPDR. Duration of resuscitation efforts has not been found to differ depending on the

presence of a family member (Fernandez et al., 2009), and studies have determined that

FPDR actually helps the family to make the decision to stop futile care (Knott & Kee,

2005; Miller & Stiles, 2009). There have been no reported instances where FPDR was

prohibited due to litigation or legal issues (Booth et al., 2004; Lowry 2012). In fact,

Tinsley et al. (2008) found families have higher satisfaction rates when they can see all was done to help the patient and this is likely to lessen legal risks. Interestingly, the perceived risks of forging an emotional connection which humanizes the patient and potential for offensive behaviors by the resuscitation team are contradicted within the same research reports also listing relationships with the family and improved professional communication as benefits of FPDR (Davidson et al., 2011; Miller & Stiles, 2009). The only reported barriers that cannot be resolved with research evidence include potential for lack of adequate environmental space and inadequate staffing levels (Axelsson et al., 2010; Bassler, 1999; Booth et al., 2004; Ellison, 2003; Fulbrook et al., 2005).

Conversely, the benefits of FPDR to the patient, family, and healthcare team have been demonstrated and supported through research. Benefits of FPDR include: granting family the opportunity to see all possible efforts were taken to save their loved one (Axelsson et al., 2010; Booth et al., 2004; Davidson et al., 2011; Fulbrook et al., 2005; Güneş & Zaybak, 2009; Holzhauser & Finucane, 2008; Knott & Kee, 2005; Lowry, 2012; MacLean et al., 2003; McClement et al., 2009; Meyers et al., 2004; Miller & Stiles, 2009; Nykiel et al., 2011), promoting improved family understanding and a realistic view of the situation which can assist families to make decisions about patient care, including the cessation of futile resuscitation attempts (Axelsson et al., 2010; Booth et al., 2004; Demir, 2008; Ellison, 2003; Fulbrook et al., 2005; Holzhauser & Finucane, 2008; Knott & Kee, 2005; Lowry, 2012; MacLean et al., 2003; McClement et al., 2009; Meyers et al., 2004; Miller & Stiles, 2009; Nykiel et al., 2011), enabling the family to spend the final moments of life with the patient to help promote closure and aid in the grieving process, provide the ability to say goodbye, and facilitate acceptance of the death (Badir & Sepit,

2007; Booth et al., 2004; Ellison, 2003; Fulbrook et al., 2005; Holzhauser & Finucane, 2007; Knott & Kee, 2005; MacLean et al., 2003; McClement et al., 2009; Meyers et al., 2004; Miller & Stiles, 2009; Nykiel et al., 2011; Ong et al., 2007), promoting improved emotional support for both patients and their families (Axelsson et al., 2010; Ellison, 2003; Holzhauser & Finucane, 2008; Lowry, 2012; MacLean et al., 2003; Meyers et al., 2004; Miller & Stiles, 2009), gaining assistance from families through the provision of accurate and rapid patient information to the healthcare team (Holzhauser & Finucane, 2008; Lowry, 2012; Miller & Stiles, 2009), improving professional behaviors among resuscitation team members (Demir, 2008; Knott & Kee, 2005; Meyers et al., 2004; Miller & Stiles, 2009), and granting the healthcare team the ability to see the patient as a valuable part of the family unit (Davidson et al., 2011; Meyers et al., 2004; Miller & Stiles, 2009).

Research has supported the benefits of FPDR, and there is insufficient or contradictory evidence regarding the risks commonly perceived. Yet, research has repeatedly demonstrated nurses view FPDR as a topic plagued with inherent risks to the patient, family, or healthcare team and this impedes widespread acceptance and implementation of FPDR. Therefore, research has also focused on examining other reasons for variability in FPDR support, such as demographic and professional attribute factors, which may impact nurses' support and implementation of FPDR.

Variability in FPDR Support

Correlational research has investigated potential reasons for variability in FPDR support. Such information provides insight into key factors that may enhance or inhibit

nurses' support and implementation of FPDR, and may assist in identifying educational strategies to improve perception and self-confidence. In the following discussion, correlational research originating from countries with a highly different culture than the United States was excluded as the rates of FPDR were so poor altogether that no statistically significant correlations were noted in any of the factors assessed (Demir, 2008; Ganz & Yoffe, 2012).

Research has found self-confidence for FPDR positively correlates with an increased age of the nurse (Chapman et al., 2011); however, other studies did not find age to impact nurses' FPDR preferences or practices (Bassler, 1999; Fallis et al., 2008; Twibell et al., 2008). No other demographic factors, such as gender or ethnicity, have demonstrated a statistically significant correlation; however, various professional attribute factors have yielded significant correlations and warrant discussion.

Inconclusive relationships between certain professional attribute factors and FPDR support have been noted and more research is needed. Years of education and years of experience have unclear correlations to FPDR support. Higher level of education has been shown to positively impact perception and self-confidence for FPDR (Chapman et al., 2011), but research using the same scale refuted this finding (Twibell et al., 2008). Basol et al. (2009) and Ellison (2003) found a significant correlation between a positive FPDR attitude and higher level of education; however, others did not (Bassler, 1999; Fallis et al., 2008; Meyers et al., 2004). Similarly, increased years of experience has been noted to correlate with improved self-confidence for FPDR (Chapman et al., 2011), while others found no relationship to perception of FPDR (Fallis et al., 2008; Feagan & Fisher, 2011; Fulbrook et al., 2005; Twibell et al., 2008).

Occupation and clinical practice setting appear to have a stronger correlation to FPDR support. The majority of research has found nurses to be more supportive of FPDR than physicians (Basol et al., 2009; Duran et al., 2007; Meyers et al., 2004; Mian et al., 2007). Only one study (Chapman et al., 2011) found no significant difference amongst nurses and physicians. Clinical practice setting has been found to correlate to FPDR support, with more supportive attitudes among emergency department nurses than those nurses working in critical care or other acute care settings (Basol et al., 2009; Bassler, 1999; Ellison, 2003; Twibell et al., 2008). Fulbrook et al. (2005) found no significant difference between nurses working in critical care or non-critical care, but did find differences between nurses working in clinical and non-clinical (management, education, and research) settings, with non-clinical nurses more supportive of FPDR. Similarly, Twibell et al. (2008) found no significant difference between nurses working in critical care and non-critical care settings; however, emergency department nurses were found to be more supportive than all other clinical areas and nurses working in outpatient settings were found to be the least accepting of FPDR.

The following correlations have not been refuted by research; however, relationships have not yet been studied extensively. Specialty certification has been shown to have a positive correlation to perception and self-confidence (Chapman et al., 2011; Twibell et al., 2008) and to attitude towards FPDR (Basol et al., 2009; Ellison, 2003). Twibell et al. (2008) also found membership in a professional organization positively affected both perception and self-confidence, while Fallis et al. (2008) found nurses to be more supportive if they had knowledge of a professional organization's position statement on FPDR. Feagan and Fisher (2011) found a positive correlation

between increased experience with CPR and a more supportive attitude towards FPDR for both nurses and physicians. Next, Chapman et al. (2011) found nurse and physician perception and self-confidence for FPDR were more positive with a history of higher frequency of FPDR invitation to families. Using the same scale, Twibell et al. (2008) found the more nurses had invited FPDR, the higher the mean scores for perception (from 2.99 to 3.38 to 4.00) and for self-confidence (from 3.47 to 3.93 to 4.43), further linking FPDR experience to increased support. Others have also found improved attitude and perception positively correlated with prior FPDR experience (Fallis et al., 2008; Feagan & Fisher, 2011; Leung & Chow, 2012). Lastly, Feagan and Fisher (2011) found a positive correlation between prior FPDR education and increased support for FPDR.

It is clear the relationships among nurses' professional attribute factors and FPDR support require further evaluation in order to build a stronger scientific body of evidence. However, the available research does demonstrate a need for strategies that can improve perception and self-confidence for FPDR through exposure and experience. In addition to exposure through clinical practice, exposure may also result from increased knowledge about the benefits of FPDR provided through specialty certification and membership in a professional organization. This may help explain the higher prevalence of FPDR support among emergency department nurses, who may be certified and maintain membership in the ENA which is a strong proponent for FPDR. Emergency department nurses are also likely to frequently implement resuscitative care (Morrison et al., 2013) and therefore receive family requests for FPDR in their work setting. Enacting such requests has been found to be the most significant predictor of improved FPDR perception and self-confidence. It appears participation in FPDR may dispel the perceived risks and assist in

realizing the benefits of FPDR. It is imperative to also increase critical care nurses'

FPDR exposure and experience, as resuscitation is also common in critical care settings.

Education may be one method of facilitating both exposure and experience for critical

care nurses.

Interventions to Improve Support for FPDR

Research has demonstrated patients and families favor FPDR; however, nurses,

especially those not employed in the emergency department, demonstrate reluctance to

adopt it into their care of patients. Therefore, research has begun to focus on interventions

to increase nurses' support for FPDR. An intervention cited in all such research is the

provision of FPDR education. Education as an intervention was the sole focus in a

number of studies. Others declared the primary intervention to be implementation of a

FPDR program, but also utilized education in order to employ such programs.

Few studies investigating the impact of education were located and all were found

to be a one-group, quasi-experimental design with a pre- and post-test. Among the

educational interventions studied were classroom-based education and various forms of

simulation. The first classroom-based study was conducted by Bassler (1999). As this

study was conducted when FPDR was a fairly new concept, the education met with a

very large effect on emergency department and critical care nurses' FPDR beliefs. All

subjects ($N = 46$) received classroom instruction on obstacles to executing FPDR, law

and hospital policy, and methods for implementation. A researcher-developed

measurement tool was administered immediately before and after the class and revealed

nurses' support for offering FPDR significantly increased from 55.6% to 88.9% ($p <$

.0005) and their intent to offer FPDR increased from 10.9% to 79.1% ($p < .0005$). Other findings included a positive correlation between clinical practice setting and FPDR support, with emergency department nurses being more supportive than critical care nurses (Bassler, 1999). A major limitation was repeating the education and data collection seventeen times in order to gain a sufficient sample which may have altered results due to time and cross-contamination among subjects. Also, measurement tool information, including validity and reliability, was not provided. Further, a one-group design was used preventing comparisons to a control group. Despite these limitations, education clearly had a positive impact on nurses' beliefs in this study. However, educational research then ceased for eight years, perhaps due to the limited FPDR research evidence at that time. During those eight years, FPDR research increased and repeated studies supported its benefits and refuted its commonly perceived risks, leading to further research on educational interventions.

Nykiel et al. (2011) surveyed emergency department staff about perceptions and beliefs related to family presence using a measurement tool developed by the ENA. The staff surveyed included nurses, physicians, respiratory therapists, radiology staff, social workers, chaplains, security officers, and registration clerks. A pre-test ($n = 139$) was administered prior to two months of classroom-based education on the history, rationale, and process for implementing family presence. A family presence program was then instituted in the emergency department. Six months after the pre-test, a post-test ($n = 113$) was distributed and revealed statistically significant differences in attitude towards giving family members the option for FPDR ($p < .01$). Interestingly, only 44% reported prior experience with family presence before the education and program, and this increased to

just 51% six months after the program started. Thematic analysis of narrative comments revealed that although a number of perceived risks persisted following implementation, the number of perceived benefits increased (Nykiel et al., 2011). Limitations included low response rates for the pre- and post-tests, no use of a control group, and surveying all emergency department staff including non-direct care personnel who may have different perspectives on FPDR. Another major limitation was administration of the post-test following a change in staff when the new class of resident physicians had begun, which may account for the limited increase in family presence experience despite the program initiation. Completion of the post-test was not restricted to staff members who actually participated in the education or pre-test, making it difficult to determine the true impact of the education and program implementation. Also, the impact of the educational interventions versus program implementation cannot be assessed.

Feagan and Fisher (2011) used classroom-based education to determine its effect on FPDR acceptance by healthcare providers from various clinical settings. Education included a PowerPoint produced by the ENA and discussion sessions about the new FPDR policy developed for facility-wide implementation. A measurement tool created by the ENA was used and six out of eight measures showed significant improvement for nurses following education; including belief in offering the FPDR as an option (Feagan & Fisher, 2011). However, study implementation methods render it difficult to determine the true effect of the education. This study was conducted in two phases; the phase 1 sample (pre-test) consisted of nurses, physicians, and management from various units (emergency department, critical care, and medical-surgical settings) in two facilities, while the phase 2 sample (post-test) consisted solely of nurses who attended FPDR

education at only one of the facilities. This places limits the ability to determine

intervention effectiveness because samples likely differed at pre- ($n = 94$) and post-

testing ($n = 25$). It is unclear how or if the researchers established whether the same

subjects completed both the pre- and post-tests. Further, some of the pre-tests were

completed six months before others and contamination may have occurred. Findings must

be interpreted with caution and may not represent the effect of the education.

Dougal et al. (2011) also used a PowerPoint presentation that detailed definitions,

staff roles including the use of a family facilitator, and information about the new family

presence policy to begin in an emergency department. The education was provided to

nurses, physicians, respiratory therapists, radiology technicians, social workers,

chaplains, technicians, and guest relations specialists. A measurement tool created by

Duran et al. (2007) was used to evaluate attitude at two time points, ten months apart;

however, it is unclear whether the first survey was distributed prior to or following the

education (first survey $n = 84$, second survey $n = 88$). Findings were difficult to interpret

because only results from the second survey were presented in which 66.7% felt the

option of FPDR is acceptable; however, it is important to note 29.8% indicated they

either agree or strongly agree they do not want FPDR. The focus of researcher discussion

was on the need to separate FPDR and family presence during invasive procedures

because they were viewed as two very different concepts. Researchers separated the two

terms and Cronbach α increased from .858 to .928, providing further evidence FPDR and

family presence during invasive procedures are two different concepts. Separate policies

were to be designed using the study results (Dougal et al., 2011). In addition to unclear

timing of the education and survey, the impact of the education was also difficult to

interpret due to low response rates, subjects leaving many items blank on the lengthy survey, and the study of both direct and non-direct care professionals without revealing differences between the groups.

From a different perspective, one study was found to investigate the effect of classroom education on baccalaureate nursing students' ($N = 100$) opinions and beliefs about family presence in the care of critically ill patients (Norton, Dimon, Richards, Kelly, & Frey, 2007). Researchers created a one hour class on development of a personal perspective, ethical considerations, and supportive scientific evidence. A survey created to determine healthcare providers' views on family presence during trauma resuscitations was adapted for this study and consisted of 11 dichotomous items requiring a yes or no response. The survey was administered as a pre- and post-test and select individual item results were presented without statistical analyses to highlight significant differences. Results included a change in belief that family presence increases legal risks, with 46 subjects agreeing it would increase legal risks on the pre-test and only 13 in agreement on the post-test. Similarly, 59 subjects felt FPDR would impair patient care on the pre-test and this decreased to 18 on the post-test (Norton et al., 2007). Though this study demonstrated positive effects of education on nursing students; limitations included no report of participation rate, no statistical data or discussion, use of a scale designed for trauma care providers, and no presence of a control group to determine the effect of repeat testing.

Another study did not disclose specific details on the type of education provided, but stated a program that included peer-support, debriefing, and dealing with grieving relatives was used (Holzhauser & Finucane, 2007). Researchers declared the intervention

to be implementation of a FPDR program, not the education. Emergency department staff; including nurses, physicians, social workers, and pastoral care persons, were surveyed prior to program initiation and again six months after it began to determine FPDR attitudes. Using a researcher-developed measurement tool, it was determined that comfort in working with grieving relatives significantly increased from 2.79 to 3.14 ($p = .011$). Belief that FPDR should be an option also increased from 2.73 to 3.29, but this was not found to be significant ($p = .286$) (Holzhauser & Finucane, 2007). Both measures were obtained using the same Likert scale and no explanation was provided on why one measure reached significance and the other did not despite a nearly identical increase in mean score. Limitations included low response rates and a sample size that differed from pre- ($n = 63$) to post-testing ($n = 36$), rendering it unclear whether the same subjects were surveyed on both. Also, the effect of education versus FPDR implementation is unclear.

Other studies have utilized various forms of simulation; either alone or in addition to classroom-based education. Mian et al. (2007) designed and implemented a FPDR program for an emergency department, which included an education component. Researchers conducted classroom-based education with nurses and physicians on current research, FPDR program guidelines, and implementation strategies. A video depicting family and healthcare provider experiences with FPDR was shown and scripts to use when offering and implementing FPDR were provided. Researchers used role play during instances of FPDR and then debriefed staff afterwards. Ongoing education included use of posters and case discussions. To test effectiveness, a researcher-developed measurement tool was used to collect data upon completion of the classroom-based education ($n = 86$ nurses, $n = 35$ physicians) and then again 12 months after the FPDR

program was instituted (*n* = 89 nurses, *n* = 14 physicians) to determine attitudes, values, and beliefs. Researchers found nurses' support for FPDR increased significantly from 57% to 70%; however, physician support decreased from 40% to 35%. Findings regarding physicians must be cautiously interpreted, as physician education was conducted by a different researcher and lacked the various educational strategies used with the nurses. Further, while response rates for nurses were 81% and 80%, they were only 50% and 23% for physicians and the post-test revealed only 1 of the 14 surveyed physicians had attended any form of FPDR education (Mian et al., 2007). These limitations, coupled with a pre-test administered after the education had already occurred, limit the ability to discern whether the education or the resultant FPDR experience impacted scores and the effectiveness of these methods of FPDR education is uncertain.

Pye, Kane, and Jones (2010) used simulation to determine its effect on pediatric critical care nurses' (*N* = 64) comfort for FPDR. Though conducted with pediatric nurses, this study is included because its focus is on the effectiveness of the educational intervention, not on pediatric nurses' current levels of FPDR support as gathered through descriptive or correlational methods. The simulation involved a human patient simulator and standardized actors to serve as the family member. In this sense, nurses gained experience with FPDR by interacting with the standardized actor and debriefings were conducted afterwards in a classroom setting to examine feelings and strategies for improvement. Although the primary goal of the simulations was to improve nurses' CPR skills, a secondary goal was to evaluate self-reported level of comfort for FPDR. A researcher developed measurement tool was administered before the simulation, immediately after, and again one year later. Comfort for FPDR increased at all time

points ($p < .005$), as did comfort level for communicating with parents in crisis ($p = .001$), indicating sustained comfort for FPDR (Pye et al., 2010). However, this data was reported in only one paragraph of the published results and no other information was made available such as details on the measurement tool items except to reveal reliability was not established prior to its use. It is also unclear whether the sustained comfort level at one year was due to the simulation education or due to the experience that resulted from subsequent clinical implementation of FPDR.

In a recent study, Kantrowitz-Gordon et al. (2012) simulated FPDR with video scenarios. Researchers also developed packets and presentations, and all materials were presented in classroom settings with small groups of nursing students (total $N = 275$). Scales developed by Twibell et al. (2008) were used to measure perception and self-confidence, and a measurement tool to evaluate knowledge also developed. Data collected before and immediately after education demonstrated the education, including video simulations which "provided students an opportunity to observe a modeling of facilitated family presence that they were unlikely to have encountered" (Kantrowitz-Gordon et al., 2012, p. 2), significantly increased knowledge, perception, and self-confidence for FPDR ($p < .001$). The effect size was large for knowledge ($d = .90$) and perception ($d = 1.04$), and moderate for self-confidence ($d = .51$). Mean scores for each of the measures significantly increased following the education, most notably for perception (Kantrowitz-Gordon et al., 2012). Limitations included undetermined reliability of the knowledge scale which had items resembling those on the perception scale, and the fact that students may have sought to please their instructors. Additionally, there was no control group to determine if changes were due to the intervention or repeat testing. Also,

the education was implemented many times and by different instructors. Yet, this study's use of established measurement scales can allow for comparison of data across studies, something lacking in prior research (Twibell et al., 2008).

Research has shown education as an intervention to improve nurses' support for FPDR is promising; however, additional study is needed to determine the most effective educational interventions. Both classroom-based and simulation learning have met with positive results; however, online learning has not yet been evaluated and may be a means of promoting more widespread FPDR education. Additionally, the majority of studies have been conducted with emergency department nurses and it is vital research also focus on critical care nurses who have frequent opportunities to enact FPDR (Morrison et al., 2013). Further, the methodological rigor of FPDR education research to date has been lacking. All of the studies used a one-group design in which there was no control group to determine if changes were due to education or repeat testing. Many did not control whether the same subjects took both the pre- and post-test, also making the true effect of the education difficult to interpret. Various measurement tools, often without clear theoretical underpinnings or established validity and reliability, were used in many studies limiting the ability to make comparisons and build knowledge on effective FPDR educational techniques. The small body of evidence on FPDR education must be built upon with methodological rigor, so a strong body of evidence results.

Summary

This chapter provided a review of the literature related to FPDR of adult patients. Research has shown patients and families desire for FPDR. If nurses are to uphold the

principles of patient- and family-centered care they must implement FPDR in their

clinical practice. However, repeated studies have demonstrated mixed levels of FPDR

support amongst nurses, especially those working outside of the emergency department.

Nurses frequently cite the perceived risks that resonate throughout the literature as

reasons for not supporting or implementing FPDR. However, the perceived risks have not

been proven, while the benefits of FPDR have been supported through research.

Correlational data has shown experience and education may increase nurses' support for

FPDR by improving their perception and self-confidence. Interventional research using

education as the independent variable has demonstrated improvement in measures such

as perception, self-confidence, comfort, attitude, and belief. However, there exists limited

research on educational interventions and the research to date has methodological

weaknesses that limit the ability to determine the true effect of educational techniques.

Further, a major gap exists in that there has been no study to investigate the effect of

online learning about FPDR. Therefore, the aim of this study was to evaluate the impact

of an online learning module on critical care nurses' perception and self-confidence for

FPDR with adult patients. Methodological strengths included the use of a two-group,

quasi-experimental, pre- and post-test design with random assignment to either an

intervention or control group. Additionally, the measurement scales developed by

Twibell et al. (2008) and tested on various sample populations (Chapman et al., 2011;

Kantrowitz-Gordon et al., 2012; Twibell et al., 2008) were utilized. Critical care nurses

were sampled in order to build knowledge related to this population who frequently

implements resuscitative care (Morrison et al., 2013).

CHAPTER 3

THEORETICAL FRAMEWORKS

This chapter presents the two theoretical frameworks that guided this study; Kurt Lewin's Change Theory and Albert Bandura's Social Cognitive Theory. Along with the research literature presented in Chapter 2, Change Theory and Social Cognitive Theory were used to guide the study design, delineate and explain the variables of interest, and aid in the creation of the online learning module intervention. Pamela Jeffries' Nursing Education Simulation Framework was also used to operationalize the online learning module and Katharine Kolcaba's Theory of Comfort was used to formulate the conceptual and operational definitions contained in this chapter.

Change Theory

FPDR is controversial among nurses and is far from the norm in practice settings (Halm, 2005). Much of the research has focused on nurses' perceptions as an obstacle to their support and implementation of FPDR. Kurt Lewin's Change Theory explains how education can aid in changing perceptions of the risks and benefits. Accomplishing a change in perception is vital as nurses' support for FPDR is determined by the risks and benefits they perceive (McClement et al., 2009). Nurses who perceive more benefits than risks have been found to be more supportive of FPDR (Twibell et al., 2008).

Change Theory has been utilized to explain interventions to improve nurses' perceptions as they relate to a change in clinical practice (Lee, 2006; Wells, Manuel, & Cunning, 2011). As FPDR is a shift from the norm in clinical practice, Change Theory is pertinent to explain interventions aimed at improving critical care nurses' perception of

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the risks and benefits of FPDR. In fact, Change Theory has been used to provide advanced practice nurses with guidance for enacting FPDR policy and practice change in the face of resistance to change (Doolin, Quinn, Bryant, Lyons, & Kleinpell, 2011). Change Theory was also used to explain the need for surveying staff about perceived risks and benefits prior to FPDR education so that it could address the restraining forces that influence change behaviors (Feagan & Fisher, 2011).

Change Theory essentially has to do with "re-education" (Lewin & Grabbe, 1945, p. 53) and its goal is to change perceptions, beliefs, or attitudes. There are three stages to change; unfreezing, change, and freezing. Unfreezing is essential for change and sustained change (freezing) to occur. Unfreezing entails creating a situation in which change is deemed necessary and this is accomplished by investigation of the facts (Lewin, 1948) and weighing of the restraining and driving forces (Schein, 1996). This is of utmost importance for critical care nurses who may have learned traditional resuscitative care which does not include FPDR, and whose continued resuscitation experiences have justified this as the norm. Research has shown FPDR is prohibited because it is "the way it has always been done" (Ellison, 2003, p. 520). During the unfreezing stage, interventions aim to demonstrate the traditional way of doing things is flawed and there is a need for changing to a new way of doing things. In the context of FPDR, unfreezing is of extreme importance and must be accomplished before nurses will implement the change in practice and refreeze making FPDR the new way of doing things (Kelly, 2012). Unfreezing involves educating critical care nurses about FPDR as an option, dispelling commonly perceived risks not supported by evidence, and detailing the benefits that are supported by research. The online learning module intervention in

this study aimed to promote unfreezing by defining FPDR and providing evidence-based information about its benefits and unsupported risks, as well as facilitating guided reflection on personal views about FPDR.

Social Cognitive Theory

Research has also demonstrated self-confidence impacts nurses' support and implementation of FPDR (Twibell et al., 2008). Albert Bandura's Social Cognitive Theory explains how education can enhance critical care nurses' self-confidence for FPDR. According to Bandura, self-efficacy is the belief in one's ability to attain goals and this is strengthened through repeated successes (Bandura, 1989). Perceived self-efficacy influences motivation and commitment to change (Bandura, 1977a; Bandura, 1977b). If a person perceives a high sense of self-efficacy, they will set higher goals and will have stronger commitment to achieve such goals (Bandura, 1989). This can be achieved through repeated performance accomplishments and the provision of encouragement while also dispelling fears (Bandura, 1977a; Bandura, 1977b). Self-efficacy is related to self-confidence and the terms are often used interchangeably by not only Bandura (Bandura, 2006), but also by other researchers who have evaluated self-efficacy for a specific topic (Larsen & Zahner, 2011; Settles, Jeffries, Smith, & Meyers, 2011). Self-confidence is the term used when referring to a particular context or task (White, 2009) and thus is an applicable measure for the specific topic of FPDR.

Social Cognitive Theory helps explain how exposure to FPDR situations and accompanying performance opportunities can promote self-confidence to change (Grusec, 1992). In this case the desired change is for critical care nurses to no longer

routinely exclude family members from the bedside during resuscitation. Twibell et al.

(2008) used Social Cognitive Theory to identify self-confidence as a key variable that

influences nurses' support for FPDR. The researchers then developed a scale specific to

self-confidence for FPDR and conducted research that revealed FPDR performance

opportunities had a significant positive correlation to nurses' self-confidence. Later,

Kantrowitz-Gordon et al. (2012) promoted observational learning and exposure to FPDR

through video simulations and guided discussions. This had a positive effect on nursing

students' self-confidence for FPDR. In this study, the online learning module intervention

aimed to promote critical care nurses' self-confidence through provision of specific

strategies for FPDR implementation and performance opportunities using a case study.

Nursing Education Simulation Framework

To operationalize the online learning module intervention, Pamela Jeffries'

Nursing Education Simulation Framework (Jeffries & Rogers, 2007) was used in

combination with Change Theory and Social Cognitive Theory. This framework is

pertinent because the online learning module included case studies as a method of

simulation (Hovancsek, 2007). It is the only theoretical framework developed specifically

for nursing education simulations and it incorporates the principles of best practices in

education and online education (Chickering & Ehrmann, 1996; Chickering & Gamson,

1987). A focus on the best practices is essential to promote learner performance and

satisfaction (Billings, Connors, & Skiba, 2001; Jeffries, 2005; Jeffries & Rogers, 2007),

and use of this framework helped ensure principles needed for successful education were

present; including active learning, diverse learning styles, time on task, high expectations,

and prompt feedback (Jeffries, 2005). Additionally, use of the Nursing Education

Simulation Framework has been shown to assist researchers to conduct research in a systematic and organized manner so the true effect of influencing variables can be evaluated (Jeffries & Rogers, 2007).

Use of online learning for nurses' continuing education is extremely relevant because it minimizes the challenges of classroom-based education amongst nurses with high personal and professional demands (DeYoung, 2003). Online learning has been increasingly used in continuing nursing education because it allows for effective teaching of learners with diverse backgrounds, eliminates the need for large numbers of nurses to leave patient care areas to attend courses, and does not require individual instructor knowledge and commitment to the topic (Harrington & Walker, 2004). Nurses have also incorporated computer use into their daily work with the advent of computerized charting, and have therefore become increasingly familiar and comfortable with computer usage for continuing education (Harrington & Walker, 2004). The aim of using online learning is to ultimately reach larger numbers of critical care nurses and promote more widespread support for FPDR. Further, classroom-based education requires individual instructors to fully support FPDR and this has been noted to be an issue due to the controversial nature of FPDR (Kantrowitz-Gordon et al., 2012). Online learning has the potential to overcome the challenges faced in traditional classroom-based settings and also conforms to current methods of continuing education used in nursing.

Active learning is essential for adult learners such as critical care nurses. It promotes critical thinking and decision making skills, and helps maintain learner interest (Jeffries & Rogers, 2007). The online learning module was designed to engage learners and to motivate a need to change their clinical practice. Varied methods of content

delivery were used to maintain learner interest and address the needs of diverse learners (Jeffries & Rogers, 2007). A structured format in which the module was divided into six brief units was used to allow for learner flexibility and promoted efficient time on task (Jeffries, 2005), which is vital for adult learners with multiple responsibilities. Units began with objectives to conform to the principle of high expectations, and included the definition of FPDR, self-assessment of knowledge with prompt evidence-based feedback to dispel perceived risks and reveal proven benefits, guided reflection on personal views, and a conclusion to unfreeze critical care nurses' perception and encourage motivation to change. Additionally, units on specific strategies for clinical implementation and a FPDR implementation practice case study with prompt feedback were used to improve self-confidence.

According to the Nursing Education Simulation Framework, there are five components of simulation design; objectives, fidelity, problem solving, learner support, and reflective thinking (Jeffries & Rogers, 2007), which can be applied to online learning. Learner objectives help ensure intended outcomes are met; in this case enhanced perception and self-confidence. Objectives were presented at the beginning of each unit to provide direction and focus (Jeffries & Rogers, 2007). Fidelity refers to the extent a simulation mimics reality. The practice case study is a form of low-fidelity simulation that provides experience with FPDR implementation (Jeffries & Rogers, 2007) to increase self-confidence. Problem solving should present attainable levels of complexity to stimulate learning and confidence (Jeffries & Rogers, 2007). A practice case study and self-assessment activities were included to promote problem solving and confidence. Resources drawn from the literature, including a sample FPDR policy and an

outline of the family facilitator role, were provided to further assist in applying material to the clinical setting. Evidence-based feedback in the self-assessment and case study provided learner support (Jeffries & Rogers, 2007) and aimed to change perception of FPDR. Lastly, the reflective thinking component is vital to encourage learners to evaluate their thinking, decisions, and ability to deal with the clinical situation presented (Jeffries & Rogers, 2007). The online learning module included debriefing questions to encourage learner reflection on FPDR views following the educational content. Research has shown support increases when nurses are asked to think about what they would want in terms of FPDR (Ellison, 2003) and this was included in the debriefing.

Nursing Education Simulation Framework provided organization for the online learning module to ensure the best practices in education and learner needs were met. Change Theory and Social Cognitive Theory were also used in the design of the online learning module as they delineate methods for improving perception and self-confidence. Change Theory and Social Cognitive Theory also helped to explain the study hypotheses, and dependent variables.

Conceptual Definitions

Conceptual definitions related to FPDR were vital for development of the online learning module. Conceptual definitions were drawn from the FPDR literature and refined using Katherine Kolcaba's Theory of Comfort to ensure relevance to nursing. The following conceptual definitions related to FPDR were utilized:

- Conceptual Definition 1: Family-centered care is partnering with patients and families in all healthcare settings and at all levels of care. It includes respect for

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choices, communication, encouraging participation, and collaboration (Conway et al., 2006). Family-centered care enhances patient and family comfort (Kolcaba, Tilton, & Drouin, 2006) and FPDR is a form of family-centered care.

- Conceptual Definition 2: FPDR is giving family the option to remain in the patient care area so they may have visual and/or physical contact with the patient undergoing resuscitation (ENA, 2007). FPDR enables family to promote patient comfort through touch and verbal reminders of their meaning (Kolcaba, 1994).

- Conceptual Definition 3: Family is defined by the patient and is the persons, related or not, who provide support and have a significant relationship with the patient (ANA, 2010; ENA, 2007).

- Conceptual Definition 4: Resuscitation is the care provided in order to sustain the life of the patient (ENA, 2007).

- Conceptual Definition 5: Family-facilitator is a designated healthcare provider dedicated solely to providing psychosocial support and explanations to the family in order to meet their needs, and is not involved in direct assistance with the resuscitation. The family-facilitator screens the family (and patient if possible) to determine FPDR preferences, assesses family understanding and suitability for entry into the resuscitation room (exclusion criteria include agitation, intoxication, and violence), explains family requirements and what they will see and hear, consults with the healthcare team, accompanies the family to the bedside, and arranges support and/or bereavement services (Mian et al., 2007). The family-facilitator is vital to the comfort of the family and FPDR should not occur without a dedicated family-facilitator.

Additionally, the following conceptual definitions essential to the design of this study were utilized:

- Conceptual Definition 6: Online learning is a form of computer-mediated instruction that uses technology to facilitate achievement of learning outcomes. Online learning uses the internet to provide instructional materials to learners and takes the place of traditional classroom-based learning by creation of a virtual classroom (Billings & Halstead, 2005).

- Conceptual Definition 7: Perception is an individual's unique view of a phenomenon that is shaped by the processing of sensory and cognitive stimuli and experiences. It is influenced by imagined or observed benefits and risks (McDonald, 2012). Critical care nurses' perception of FPDR is influenced by the risks and benefits either imagined or observed.

- Conceptual Definition 8: Self-confidence is a personal belief in the ability to achieve a positive outcome for a specific goal, and can be fostered and influenced by attainment of knowledge through education, reinforcement of learning, and experience or practice (White, 2009). Self-confidence in personal ability to implement FPDR is influenced by opportunities to practice FPDR implementation via educational or clinical experiences.

- Conceptual Definition 9: Critical care nurses are licensed nurses working in high-acuity patient care areas that require intensive management of unstable patients with life-threatening problems. Critical care nurses are responsible for ensuring optimal nursing care is provided to acutely ill patients and their families (AACN, 2014b).

Operational Definitions

The independent variable in this study was the FPDR online learning module. The two dependent variables were perception and self-confidence for FPDR. The following operational definitions were used in this study:

- Operational Definition 1: The FPDR online learning module consisted of six units: introduction, self-assessment of knowledge with research evidence, strategies for implementation, a practice case study, reflection on personal views, and conclusion. Subjects in the intervention group received the FPDR online learning module, while the control group received an online learning module on recent changes in resuscitative care that did not include information about FPDR.

- Operational Definition 2: The Family Presence Risk-Benefit Scale (FPR-BS) was used to measure perception of the risks and benefits of FPDR. The FPR-BS measures risks and benefits to the patient, family, and healthcare providers (Twibell et al., 2008). The FPR-BS was administered before and after viewing the online learning module.

- Operational Definition 3: The Family Presence Self-confidence Scale (FPS-CS) was used to measure self-confidence for implementing and managing the presence of family in the resuscitation room (Twibell et al., 2008). The FPS-CS was administered before and after viewing the online learning module.

Summary

This chapter presented the theoretical frameworks that guided this study. Review of the literature yielded the dependent variables of interest; perception and self-

confidence for FPDR. The use of Change Theory and Social Cognitive Theory promoted a better understanding of these variables, as well as methods for ensuring the online learning module intervention addressed these variables. Research also demonstrated the success of education as an independent variable for improving nurses' perception and self-confidence. The Nursing Education Simulation Framework was used to guide the creation of the online learning module. Therefore, the online learning module was designed to improve perception and self-confidence as supported by both research evidence and theory.

CHAPTER 4

METHODOLOGY

This chapter describes the study methodology. The hypotheses, design, sample, ethical considerations, study variables and instrumentation, data collection procedures, and data analysis are addressed in detail. Presentation of data collection procedures is expanded to include detailed discussion about study implementation.

Hypotheses

The purpose of this study was to evaluate the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR with adult patients. The two hypotheses of this study were:

1. The FPDR online learning module will cause a change in critical care nurses' perception of FPDR. Mean FPR-BS composite score will increase from pre- to post-testing for the intervention group that receives the FPDR online learning module, and will not significantly increase for the control group.

2. The FPDR online learning module will cause a change in critical care nurses' self-confidence for implementing FPDR. Mean FPS-CS composite score will increase from pre- to post-testing for the intervention group that receives the FPDR online learning module, and will not significantly increase for the control group.

Design

A quasi-experimental design was used to determine the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR. A

design that examines causality was necessary to test the study hypotheses; however, complete control and random sampling was not possible and thus a quasi-experimental design was used. The quasi-experimental design utilized was a two-group, pre- and post-test design in order to determine the effect of the FPDR online learning module intervention on the dependent variables perception and self-confidence (Burns & Grove, 2009; Polit & Beck, 2004). Manipulation and control of variables occurred as the independent variable was administered to the intervention group only and not to the control group who instead received online learning pertaining to recent changes in resuscitative care that did not include information about FPDR. Additional methods of control included use of sample inclusion criteria and measurement with reliable and valid scales (Burns & Grove, 2009; Polit & Beck, 2004). Random sampling, an ideal component of classic experimental design, was not possible; however, random assignment to either the intervention or control group was used to strengthen the study rather than using convenience sampling alone (Burns & Grove, 2009; Keppel & Wickens, 2004). A pre- and post-test, or repeated-measures design, was chosen to determine changes (Burns & Grove, 2009; Polit & Beck, 2004) in perception and self-confidence that occurred as a result of the online learning module.

Choice of study design was also a product of the literature review which revealed prior research on FPDR educational interventions has lacked the methodological rigor that results from manipulation, control, and/or randomization. None of the prior studies used a control group to determine if changes were due to the educational intervention or repeat testing. Use of a control group strengthened this study, allowing for comparisons between subjects who received the FPDR online learning module intervention and those

who did not (Burns & Grove, 2009; Polit & Beck, 2004). Additionally, many of the prior repeated-measures studies on FPDR educational interventions did not use methods to control whether the same subjects completed both the pre- and post-test or to ensure subjects even received the education prior to completing the post-test. This study was strengthened by ensuring data analyzed was from subjects who completed both pre- and post-testing, as well as the educational intervention (Burns & Grove, 2009; Penny & Atkinson, 2011). The online format of this study allowed for clear assessment of whether subjects completed both the pre- and post-test.

Population and Sample

The target population for this study was registered nurses (RN) actively licensed in the United States and working in critical care settings that provide care to adult patients. The majority of FPDR research has been focused on emergency department nurses (Twibell et al., 2008). This study was innovative due to its focus on critical care nurses who participate in 45% of adult in-hospital resuscitation events (Morrison et al., 2013). Targeting nurses who work in critical care increased generalizability to this population.

Convenience sampling was used to gain access to an adequate sample size for the two-group design. The sample was recruited using study advertisements posted on the AACN's Critical Care eNewsline and social media pages (Facebook and Twitter). The AACN is a professional organization for critical care nurses in the United States and the Critical Care eNewsline is an electronic newsletter it provides to members and other subscribers. The Critical Care eNewsline is emailed out and posted weekly to the AACN

website. It offers informational resources, as well as opportunities to participate in research studies (AACN, 2014b). Written permission to recruit study subjects via advertisements on the AACN's Critical Care eNewsline and social media sites was obtained (Appendix B). The advertisement included a brief description of the study purpose, a link to learn more about the study and consent to participate, and contact information for the student investigator.

Inclusion criteria were RN licensure in the United States and current employment in a critical care setting where care is provided to adult patients aged 18 years and older. Additionally, access to a computer and the internet, as well as the ability to read English, was required of subjects. Although the study was advertised through the AACN, membership in the AACN was not required. Subscription to the AACN's Critical Care eNewsline is not dependent upon AACN membership. Potential subjects were excluded if they did not have RN licensure in the United States, did not work in a critical care setting where care is provided to adult patients, did not have computer or internet access, or could not read in English.

A priori determination of sample size was calculated with G*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2007). Using G*Power 3 software and entering the setting ANOVA: Repeated measures, within-between interaction and the input parameters of a medium effect size of 0.25, alpha of 0.05, and power of 0.80 (Cohen, 1992), the a priori sample size was calculated to be a total of 34 subjects. Use of a medium effect size was pertinent (Murphy & Myors, 2004) as there have been no prior studies with a control group, nor have there been studies on the use of online learning about FPDR. Kantrowitz-Gordon et al. (2012) did use a one-group sample to study the

impact of FPDR education and found a large effect size for perception and a medium effect size for self-confidence; however, the sample consisted of nursing students who had no prior exposure to resuscitation or FPDR and this may have caused a larger effect to result. A medium effect size was deemed more appropriate for practicing critical care nurses who have had clinical exposure to resuscitation and/or FPDR. Effect size was not presented in other FPDR educational research studies making it difficult to use prior research to determine the expected effect size of this study (Keppel & Wickens, 2004).

Ethical Considerations

Potential subjects who clicked on the study link provided through AACN advertisements were first directed to a webpage highlighting study information including the purpose, requirement of consent, random assignment to two groups, and time requirements for completion of pre- and post-tests and the online learning module. Potential subjects were informed of eligibility requirements and provided contact information for the student and principal investigator. At the bottom of this information page, potential subjects were instructed to click the forward button to advance to sign the informed consent if interested in participating in the study (Waltz et al., 2010).

The informed consent page provided the study title and purpose, investigator contact information, inclusion criteria, and an outline of the study procedures. Potential subjects were informed there were no direct benefits associated with participation, but they may gain additional knowledge on FPDR and recent changes in resuscitative care. Potential risks were described as minimal and included feeling slightly uncomfortable in answering one or more questions on the pre- or post-test. Potential subjects were

informed they may opt not to answer a question and may click out of the study at any time with the ability to return to the same point as long as using the same computer. Also, potential subjects were informed they may refuse to participate or may withdraw from the study at any time. Lastly, methods to ensure confidentiality were outlined and included reporting study findings by group and not individual results, securing subject data and destroying it after a period of three years, and collecting no identifying information such as name, email address, or place of employment (Burns & Grove, 2009; Polit & Beck, 2004; Waltz et al., 2010). Informed consent was obtained from all subjects prior to random assignment to either the intervention or control group. Institutional Review Board (IRB) approval at the University of Nevada, Las Vegas (UNLV) and at the student investigator's home university was obtained (Appendix C) prior to study advertisement, obtaining informed consent, and collecting data.

Study Variables and Instrumentation

The independent variable in this study was the FPDR online learning module. The intervention group received the FPDR online learning module and the control group did not. Instead, the control group received an online learning module about recent changes in resuscitative care which did not address FPDR or any other psychosocial interventions. The impact of either online learning module was evaluated using pre- and post-tests that were identically administered to both groups.

Dependent variables included perception and self-confidence for FPDR, as described and defined in Chapter 3. Both dependent variables were measured using scales created and tested by Twibell et al. (2008). Written permission to use the scales without

adjustments was obtained (Appendix D). Unlike other measurement tools in the FPDR literature, these scales are of sufficient and practical length, are designed for nurses in various acute care settings and not specific to the emergency department, and are grounded in theory relating to the two variables of interest (Twibell et al., 2008). Both scales were developed based upon review of the literature and expert nurse interviews, and both underwent expert review and pilot testing with nurses ($N = 20$). Reliability of the scales was then tested in a study of nurses from various acute care settings ($N = 375$).

The 22-item FPR-BS measures perception of the risks and benefits of FPDR and Cronbach α reliability was reported at .96. The 17-item FPS-CS was designed to measure self-confidence for FPDR implementation and Cronbach α reliability was reported at .95. Both utilize a 5-point Likert scale with response options ranging from strongly disagree (1) to strongly agree (5) for the FPR-BS and from not at all confident (1) to very confident (5) for the FPS-CS. To determine perception and self-confidence for FPDR, mean composite scores are calculated (Burns & Grove, 2009; Furr & Bacharach, 2008; Polit & Beck, 2004; Twibell et al., 2008) and can range from 1 to 5. The higher the mean composite score, the better the perception and greater the self-confidence for FPDR. A replication study by Chapman et al. (2011) confirmed acceptable Cronbach α reliabilities (Burns & Grove, 2009; DeVellis, 2012) of .81 for the FPR-BS and .96 for the FPS-CS. Kantrowitz-Gordon et al. (2012) also used the FPR-BS and FPS-CS in a repeated-measures study evaluating the impact of FPDR education on nursing students and met with statistically significant results on both measures. In this study, the FPR-BS and FPS-CS comprised the pre- and post-test.

In addition to the FPR-BS and FPS-CS, a student investigator-developed demographic and professional attribute form was administered during pre-testing. It was created using the literature and included 25 brief multiple choice items to determine the characteristics of the subjects. Data collected was used to describe the sample and assess equality between the two groups (Burns & Grove, 2009; Polit & Beck, 2004). See Appendix E for the measurement scales used in this study.

Procedures and Data Collection

Following IRB approvals, study implementation and data collection proceeded with advertising the study. Advertisements were emailed to subscribers of the AACN Critical Care eNewsline once per week for a total of four weeks and also posted to the AACN webpage. Advertisements were also posted on AACN's Facebook and Twitter social media pages for two weeks. Potential subjects who clicked on the provided link for the study were directed to the study site run through the survey software program Qualtrics©. Qualtrics© is used in academic settings to create, distribute, and analyze research and it has the capability for random assignment to groups (Qualtrics, 2014; Waltz et al., 2010). The student investigator's home university provided the Qualtrics© account and secured password, and informatics specialists assisted with the random assignment.

After potential subjects accessed the Qualtrics© study site through the advertisements, they were first directed to the study information page. From there, potential subjects were instructed to click the forward button to move on to signing the informed consent if interested in participating. Informed consent was obtained from all

subjects prior to random assignment. Random assignment to either the intervention or control group via Qualtrics© software then occurred. Separate Qualtrics© study sites for the intervention and control group were designed and subjects were automatically routed to their randomly assigned study site. Both study sites began with an identical pre-test consisting of the demographic and professional attribute form and the FPDR scales (FPR-BS and FPS-CS). Definitions of family, resuscitation, and FPDR were provided to facilitate completion. The pre-test concluded by instructing subjects to click on the forward button to access their randomly assigned online learning module. The FPDR online learning module then opened for subjects in the intervention group and the online learning module that opened for the control group was on recent changes in resuscitative care.

The six units that comprised the intervention FPDR online learning module were titled: (1) Introduction to Family Presence during Resuscitation, (2) Self-Assessment and the Evidence, (3) Strategies for Implementing Family Presence during Resuscitation, (4) Family Presence during Resuscitation Practice Case Study, (5) Reflection: Your View of Family Presence during Resuscitation, and (6) Conclusion of Online Learning Module. The six units that comprised the control online learning module were titled: (1) Introduction/Resuscitative Care Overview, (2) Cardiopulmonary Resuscitation (Basic Life Support) Updates, (3) Electrical Therapies and Defibrillation with Cardiac Arrest, (4) Advanced Airway and Oxygenation during Resuscitation, (5) Medications for Use in Resuscitation, and (6) Conclusion of Online Learning Module. Each unit began with learner objectives, provided content and/or activities, and ended with references utilized. The references used to create the intervention online learning module were presented in

Chapter 2. The references used to create the control online learning module were resources available online through the AHA and the AHA journal *Circulation* (AHA, 2010a; AHA, 2010b; AHA, 2014b; Berg et al., 2010; Field et al., 2010; Link et al., 2010; Neumar et al., 2010; Sayre et al., 2010; Travers et al., 2010). Page breaks were used to organize content and units, and subjects were required to click on the forward button to advance through the units. Both online learning modules were similar in length and presentation; however, the intervention online learning module used active learning techniques such as the self-assessment and case study in addition to content delivery, while the control module consisted primarily of content delivery. See Appendix F for the intervention and control online learning module content with accompanying educational strategies.

At the conclusion of both online learning modules, subjects were instructed to click on the forward button to take the post-test and complete study participation. In each of the study sites, an identical post-test consisting of the FPR-BS and FPS-CS opened. The post-test concluded with a message informing subjects that their study participation was complete and they may view the online learning module received by the other group if desired. Viewing the other online learning module was optional and subjects could click the forward button to view the other learning module or click a link that closed the study site. Immediate access to the online learning module received by the other group was provided to ensure equality among subjects (Burns & Grove, 2009).

After accessing the study site from the AACN advertisement, potential subjects were informed they had four weeks to re-access the site and complete their participation in the study. Subjects were made aware if they clicked out of the study they could re-

enter and resume their participation at the same spot they left off as long as they were using the same computer. This was designed to ensure ease of participation due to other obligations. Expected time for study completion was approximately 45 minutes to read the study information, sign the informed consent, complete pre- and post-tests, and view online learning module they were assigned.

Data security on the Qualtrics© study sites was maintained by the student investigator's home university and only the student investigator had access to the unique password required to access the study sites and results. Following closure of the study, data was transferred to a USB flash drive and removed from Qualtrics©. Study data will be maintained in the student investigator's home university office in a locked file for a period of three years, after which it will be destroyed. Additionally, the IP addresses for the Qualtrics© study sites were disabled upon conclusion of the study (Waltz et al., 2010). Data collection procedures are summarized in Figure 1.

Figure 1. Schematic diagram of the data collection process.
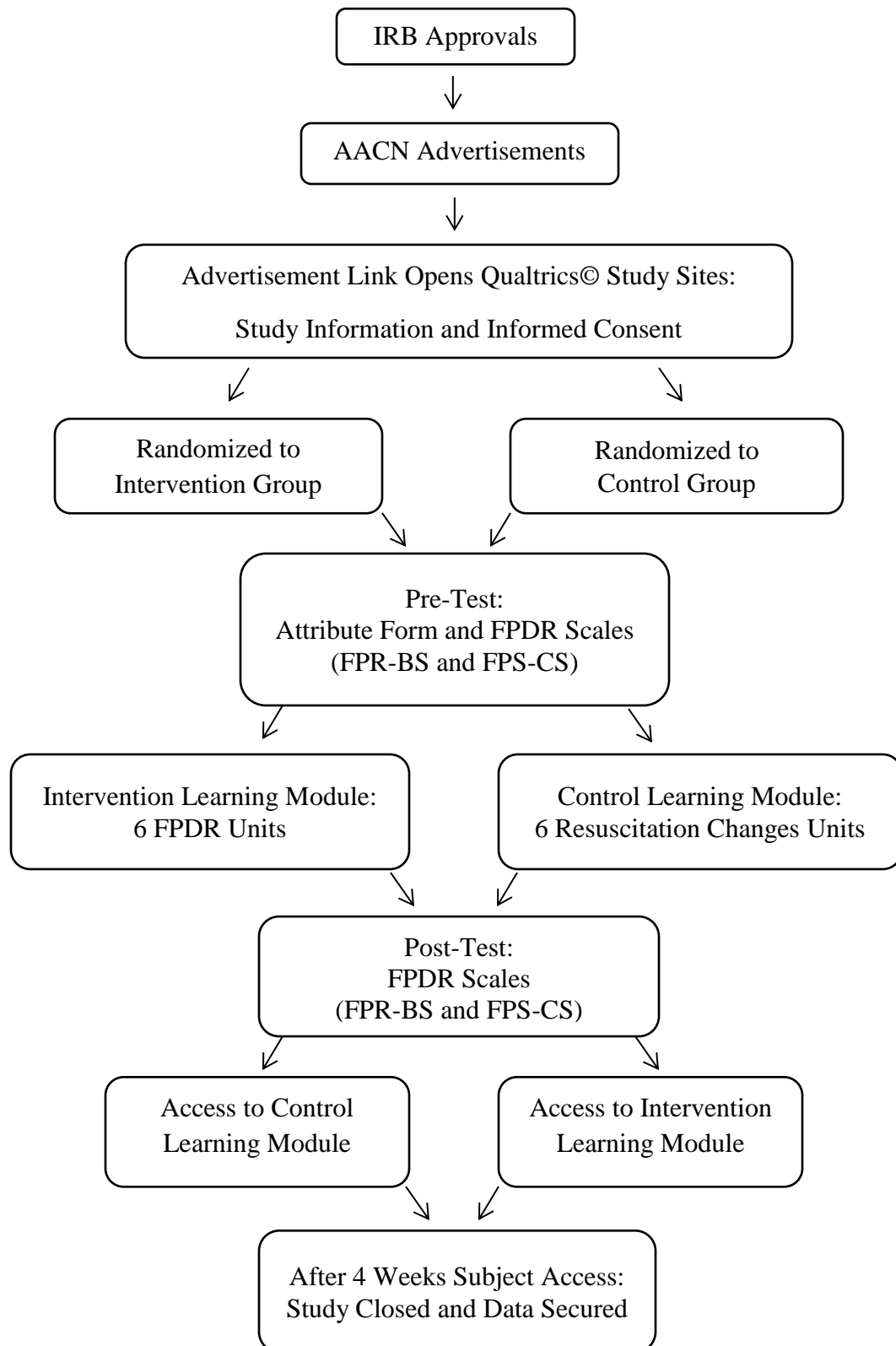
Data Analysis

Data analysis used Statistical Package for the Social Sciences (SPSS) version 21. Data analysis began by transferring the data from Qualtrics© to SPSS. Only subjects with both pre- and post-test data were included in the analysis of the study hypotheses in order to determine the impact of the online learning module on critical care nurses' perception and self-confidence for FPDR (Penny & Atkinson, 2011). Data on the amount of subjects who did not complete both the pre- and post-test was collected. Next, six of the scale items were reverse coded according to directions provided by the researcher who created the FPR-BS and FPS-CS. Mean composite scores for the FPR-BS and FPS-CS were calculated. The data was screened for extreme outliers and normality was determined (Keppel & Wickens, 2004; Pallant, 2010).

Descriptive statistics were used to present the information obtained from the student investigator-developed demographic and professional attribute form (Burns & Grove, 2009; Polit & Beck, 2004). Frequency distributions were used to promote a better understanding of the nature of the data as related to sample characteristics and random assignment (Burns & Grove, 2009; Cassidy, 2005). Descriptive statistics were also used to present mean composite scores on the FPR-BS and FPS-CS for each group (Burns & Grove, 2009). Tables were used to highlight complete findings.

To analyze the two study hypotheses, a statistical procedure capable of testing the difference between means was necessary. Analysis of variance (ANOVA) is a parametric procedure used to determine mean differences (Cassidy, 2005; Kao & Green, 2008; Keppel & Wickens, 2004; Polit & Beck, 2004; Wilcox, 2002). In addition, this study

included both a within-subjects factor (pre-test and post-test) and a between-subjects factor (FPDR online learning module and control online learning module) (Keppel & Wickens, 2004; Krueger & Tian, 2004: Polit & Beck, 2004; Sullivan, 2008). The use of a mixed-model factorial ANOVA provides information about the effect of each of these factors on the dependent variables- both separately and combined (Keppel & Wickens, 2004; Pallant, 2010; Polit & Beck, 2004). Considering the study hypotheses, factors or independent variables, and dependent variables in this study, the two-factor, mixed-model factorial ANOVA was utilized for data analysis. The two-factor, mixed-model factorial ANOVA detects mean differences in the within-subjects and between-subjects factors, as well as their interaction (Keppel & Wickens, 2004; Pallant, 2010). Data analysis using the two-factor, mixed-model factorial ANOVA was conducted separately for each of the dependent variables. First, assessment of the interaction was conducted and then assessment of the within-subjects factor and the between-subjects factor was performed using simple contrasts and simple effects to determine where specific statistically significant differences lie (Keppel & Wickens, 2004). Tables were used to highlight findings.

Summary

This chapter described the study methodology. The two study hypotheses were presented. In order to test the hypotheses, this study used a two-group, pre- and post-test quasi-experimental design to evaluate the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR. Convenience sampling with random assignment to the intervention or control group was used. The intervention group received the independent variable; an online learning module on FPDR. The control

group received an online learning module on recent changes in resuscitative care that did not include information about FPDR. The dependent variables of perception and self-confidence were measured using the FPR-BS and the FPS-CS. Study implementation and data collection procedures were detailed, as well as appropriate statistical procedures for data analysis.

CHAPTER 5

RESULTS

This chapter presents the study results. This study tested the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR. Descriptive information about the sample is provided. Next, the results for each of the two study hypotheses are presented.

Attrition and Response Rates

The study was advertised 4 consecutive weeks and 202 potential subjects entered the study information webpage provided in AACN advertisements. Of those who entered this webpage, 138 consented to participate and 64 clicked out with no response provided. Of the 138 potential subjects who consented, 132 actually clicked forward to begin their participation. At that time, random assignment to the intervention and control groups occurred. There were 65 subjects assigned to the intervention group and 67 subjects assigned to the control group. Only complete subject data (both pre- and post-test) was included in the analysis so the effect of the online learning module could be evaluated (Penny & Atkinson, 2011). Pre- and post-testing was completed by 41 out of 65 in the intervention group. One subject from the intervention group was deleted from the results after analysis of the demographic and professional attribute data revealed the work setting to be other than critical care. Pre- and post-testing was completed by 34 out of 67 in control group. Total sample size was $N = 74$ (intervention $n = 40$, control $n = 34$).

Description of Sample

As discussed, 74 subjects comprised the study sample and all completed the demographic and professional attribute form. The obtained demographic information

revealed a similar age distribution among the intervention and control groups. Both

groups displayed a lack of diversity with 34 in the intervention group and 32 in the

control group indicating they were of Caucasian ethnicity. Next, gender of the sample

was primarily female (95% of the intervention group and 91.2% of the control group).

See Table 1 for the full demographic information obtained.

Table 1

Demographic Information

	Intervention Group (n = 40)		Control Group (n = 34)	
	n	%	*n*	%
Age				
18-24 years old	0	0	0	0
25-34 years old	8	20	12	35.3
35-44 years old	9	22.5	6	17.6
45-54 years old	11	27.5	8	23.5
55-64 years old	11	27.5	7	20.6
65 years and older	1	2.5	1	2.9
Ethnicity				
Caucasian	34	85	32	94
African American	3	7.5	0	0
Hispanic	2	5	1	2.9
Asian	1	2.5	2	5.8
Native American	0	0	1	2.9
Other	1	2.5	1	2.9
Gender				
Female	38	95	31	91.2
Male	2	5	3	8.8

Note. Ethnicity data does not total 100%; subjects could identify more than one ethnicity.

Professional attribute information was also collected from the 74 subjects. The

majority of subjects in the intervention (45%) and control (52.9%) groups reported their

highest earned nursing degree was a baccalaureate degree. In addition, 23.5% of the

intervention group and 29.4% of the control group indicated they held a graduate level degree. Degree attained differed in the amount of subjects who held an associate's or diploma degree, with 32.5% of the intervention group and 17.6% of the control group indicating this was their highest earned nursing degree. The sample was found to be very experienced with 42.5% of the intervention group and 35.3% of the control group having more than 20 years of RN experience. Further, the majority of the intervention (92.5%) and control (88.3%) groups reported they had more than 5 years of RN experience. In regards to current job title, the majority of the intervention (75%) and control (70.6%) groups indicated their current job title was that of Bedside RN, with the remainder in nursing management, education, or advanced practice roles. Subjects in both groups reported working on various units providing critical care. The majority reported at least one specialty certification (62.5% of the intervention group and 64.7% of the control group). The most commonly reported specialty certification was that of Certified Critical Care Nurse (CCRN); this certification was held by 47.5% of the intervention group and 50% of the control group. The overwhelming majority reported membership in at least one professional nursing organization (92.5% of the intervention group and 94.1% of the control group), and approximately three-fourths of each group reported being members of the AACN. See Table 2 for full information on each of these professional attributes.

Table 2

Professional Attribute Information

	Intervention Group (*n* = 40)		Control Group (*n* = 34)	
	n	%	*n*	%
Highest Nursing Degree				
Diploma degree	1	2.5	3	8.8
Associate degree	12	30	3	8.8
Baccalaureate degree	18	45	18	52.9
Master's degree	8	21	9	26.5
Doctoral degree	1	2.5	1	2.9
Years of RN Experience				
Less than 1 year	0	0	1	2.9
1 to 5 years	3	7.5	3	8.8
6 to 10 years	9	22.5	11	32.4
11 to 15 years	5	12.5	4	11.8
16 to 20 years	6	15	3	8.8
More than 20 years	17	42.5	12	35.3
Current Job Title				
Bedside nurse	30	75	24	70.6
Nursing research	0	0	0	0
Nursing management	4	10	9	26.5
Nursing education	4	10	1	2.9
Advanced practice	2	5	0	0
Primary Unit Type				
Critical care unit	33	82.5	29	85.3
Progressive care unit	1	2.5	3	8.8
Emergency department	1	2.5	2	5.9
Other	5	12.5	0	0
Specialty Certified				
Yes	25	62.5	22	64.7
No	15	37.5	11	32.4
No response	0	0	1	2.9
Type of Specialty Certification				
Certified Critical Care Nurse	19	47.5	17	50
Progressive Care Certified Nurse	1	2.5	0	0
Certified Emergency Nurse	2	5	1	2.9
Other	9	22.5	5	14.5
Member of Professional Organization				
Yes	37	92.5	32	94.1
No	2	5	2	5.8
No response	1	2.5	0	0
Name of Professional Organization				
AACN	30	75	26	75.4
ENA	2	5	3	8.8
ANA	6	15	3	8.8
Other	7	17.5	6	17.4

Note. Primary unit type is identified as other for subjects who indicated they worked in critical care transport, post-anesthesia, coronary catheterization laboratory, and university settings. Type of specialty certification and name of professional organization data does not total 100%; subjects could identify more than one.

Information about professional exposure to resuscitative care and education, as well as exposure to FPDR and FPDR education, was also collected. In terms of exposure to resuscitative education, 92.5% of the intervention group and 88.2% of the control group reported they were Advanced Cardiac Life Support (ACLS) certified. When asked if they had ever served as a member of a "Code Blue" or "Rapid Response" team, 95% of the intervention group and 94.1% of the control group indicated they had this exposure to resuscitative care. All 74 subjects had prior experience with CPR or cardiac arrest codes during their career, and 95% of the intervention group and 94.1% of the control group had such experience within the past year. See Table 3 for full information on professional attributes pertaining to resuscitative care.

Table 3

Resuscitative Care Professional Attribute Information

	Intervention Group (*n* = 40)		Control Group (*n* = 34)	
	n	%	*n*	%
ACLS Certified				
Yes	37	92.5	30	88.2
No	3	7.5	4	11.8
Member of Code or Rapid Response teams				
Yes	38	95	32	94.1
No	2	5	2	5.8
Amount of CPR or codes experienced				
In Entire Career				
Never	0	0	0	0
1 to 5 times	1	2.5	2	5.9
6 to 10 times	2	5	2	5.9
11 to 20 times	4	10	2	5.9
More than 20 times	33	82.5	28	82.4
In Past Year				
Never	2	5	2	5.9
1 to 5 times	14	35	13	38.2
6 to 10 times	9	22.5	6	17.6
11 to 20 times	9	22.5	4	11.8
More than 20 times	6	15	9	26.5

The remainder of the professional attribute items pertained to experience with FPDR. Less than one-third of subjects in the intervention group (27.5%) and control group (32.4%) reported their facility or unit had a written policy on FPDR. Most indicated their facility or unit did not have a FPDR policy (40% of the intervention group and 44.1% of the control group) or they were unsure if one existed (32.5% of the intervention group and 20.6% of the control group). With regard to having received education about FPDR, 45% of the intervention group and 38.2% of the control group reported they had previously attended a class or received education about FPDR. Most had some level of experience with family being present in the room during CPR or cardiac arrest codes. In fact, only one subject in each of the groups had never had this experience in their career. However, in the past year 27.5% of the intervention group and 26.5% of the control group did not have the experience of family being present in the room and most had experienced it infrequently at 1 to 5 times within the past year (57.5% of the intervention group and 50% of the control group). When asked about frequency of initiating FPDR, 32.5% of the intervention group and 23.5% of the control group reported they had never asked family to come into the room during a cardiac arrest code in their career, and this rose to 42.5% and 44.1% respectively for the amount of subjects who had not initiated FPDR within the past year. Subjects were also asked how often family members have requested to come into the room during a cardiac arrest code. Almost half (42.5% of the intervention group and 41.2% of the control group) had never received such requests from family in their career, and this rose to 62.5% and 76.5% respectively within the past year. See Table 4 for full information on professional attributes pertaining to FPDR.

Table 4

FPDR Professional Attribute Information

	Intervention Group (n = 40)		Control Group (n = 34)	
	n	%	*n*	%
Presence of facility or unit FPDR policy				
Yes	11	27.5	11	32.4
No	16	40	15	44.1
Unsure	12	32.5	7	20.6
Received prior FPDR education				
Yes	18	45	13	38.2
No	22	55	21	61.8
Amount of FPDR experienced				
In Entire Career				
Never	1	2.5	1	2.9
1 to 5 times	18	45	14	41.2
6 to 10 times	7	17.5	4	11.8
11 to 20 times	9	22.5	9	26.5
More than 20 times	5	12.5	6	17.6
In Past Year				
Never	11	27.5	9	26.5
1 to 5 times	23	57.5	17	50
6 to 10 times	3	7.5	5	14.7
11 to 20 times	3	7.5	2	5.9
More than 20 times	0	0	1	2.9
Amount of FPDR initiation				
In Entire Career				
Never	13	32.5	8	23.5
1 to 5 times	17	42.5	15	44.1
6 to 10 times	4	10	5	14.7
11 to 20 times	3	7.5	2	5.9
More than 20 times	3	7.5	4	11.8
In Past Year				
Never	17	42.5	15	44.1
1 to 5 times	20	50	17	50
6 to 10 times	2	5	0	0
11 to 20 times	0	0	2	5.9
More than 20 times	1	2.5	0	0
Amount of FPDR requests from family				
In Entire Career				
Never	17	42.5	14	41.2
1 to 5 times	17	42.5	14	41.2
6 to 10 times	3	7.5	2	5.9
11 to 20 times	2	5	2	5.9
More than 20 times	1	2.5	4	11.8
In Past Year				
Never	25	62.5	26	76.5
1 to 5 times	13	32.5	6	17.6
6 to 10 times	1	2.5	0	0
11 to 20 times	1	2.5	1	2.9
More than 20 times	0	0	1	2.9

Hypotheses Results

First, SPSS was used to evaluate the data for normality and the presence of

extreme outliers within the pre- and post-test mean composite scores. Normality was

established through assessment of skewness and kurtosis values, as well as visual

assessment of histograms with bell curve overlay (Keppel & Wickens, 2004; Pallant,

2010). There were no extreme outliers detected. This established that use of the planned

parametric statistical test; the two-factor, mixed-model factorial ANOVA, was

appropriate (Keppel & Wickens, 2004; Pallant, 2010). Data was then analyzed for the

study's two hypotheses separately. A total of 74 subjects completed the FPR-BS pre- and

post-test and this data was used to evaluate hypothesis one (intervention $n = 40$, control n

$= 34$). For the FPS-CS, there were two subjects in the intervention group who completed

the pre-test, but not the post-test. Data from both the pre- and post-test was necessary to

test the study hypotheses (Penny & Atkinson, 2011); therefore, the data from a total of 72

subjects was used to evaluate hypothesis two (intervention $n = 38$, control $n = 34$).

Hypothesis One

Hypothesis one addressed the effect of the online learning module on critical care

nurses' perception of FPDR. Specifically, hypothesis one stated the FPDR online

learning module would cause a change in perception of FPDR with a mean composite

score increase on the FPR-BS from pre- to post-testing for the intervention group and no

significant increase on the FPR-BS from pre- to post-testing for the control group. To test

this hypothesis, mean composite scores on the FPR-BS were subjected to the two-factor,

mixed-model factorial ANOVA with type of test (pre-test and post-test) serving as the

within-subjects factor and type of treatment (FPDR online learning module and control

module) serving as the between-subjects factor. Perception served as the dependent variable in the analysis. Relevant assumptions were met; including those of normality, homogeneity of variances, and equality of covariance matrices. Reliability of the FPR-BS was confirmed with a Cronbach α of .94. Results of the two-factor, mixed-model factorial ANOVA with perception as the dependent variable demonstrated that the type of test (time) x type of treatment (intervention versus control module) interaction was statistically significant, $F(1, 72) = 26.91$, $p < .0005$, partial $\eta^2 = .27$. The interaction was noted to be disordinal and main effects were not interpreted (Keppel & Wickens, 2004).

Simple contrasts and simple effects were requested following the significant interaction. The simple contrasts of the within-subjects factor revealed a statistically significant increase from pre- to post-testing in FPR-BS mean composite scores for the intervention group, but not for the control group. For the intervention group, the FPR-BS mean composite score increase from the pre-test ($M = 3.63$, $SD = .68$) to post-test ($M = 4.07$, $SD = .63$) was statistically significant, $F(1, 72) = 80.21$, $p < .0005$, partial $\eta^2 = .53$. The difference in FPR-BS mean composite scores from pre- to post-testing was not statistically significant for the control group ($p = .23$). The simple effects of the between-subjects factor revealed no statistically significant difference in FPR-BS mean composite scores between the intervention and control group at either time point. The difference in FPR-BS mean composite scores on the pre-test was not statistically significant ($p = .19$) between the intervention group ($M = 3.63$, $SD = .68$) and control group ($M = 3.82$, $SD = .55$). Similarly, the difference in FPR-BS mean composite scores on the post-test was not statistically significant ($p = .21$) between the intervention group ($M = 4.07$, $SD = .63$) and

the control group ($M = 3.88$, $SD = .59$). See Table 4 for mean composite scores for both dependent variables.

Hypothesis Two

Hypothesis two sought to determine the effect of the online learning module on critical care nurses' self-confidence for FPDR. Specifically, hypothesis two stated the FPDR online learning module would cause a statistically significant mean composite score increase on the FPS-CS from pre- to post-testing for the intervention group and no significant increase for the control group. To test this hypothesis, FPS-CS mean composite scores were subjected to the two-factor, mixed-model factorial ANOVA with type of test (pre-test and post-test) serving as the within-subjects factor and type of treatment (FPDR online learning module and control module) serving as the between-subjects factor. Self-confidence served as the dependent variable in the analysis. Relevant assumptions were met; including those of normality, homogeneity of variances, and equality of covariance matrices. A Cronbach α of .94 confirmed reliability of the FPS-CS. Results of the two-factor, mixed-model factorial ANOVA with self-confidence as the dependent variable demonstrated the type of test (time) x type of treatment (intervention versus control module) interaction was statistically significant, $F(1, 70) = 14.78$, $p < .0005$, partial $\eta^2 = .17$. The interaction was noted to be disordinal; therefore, main effects were not interpreted and simple contrasts and simple effects were requested (Keppel & Wickens, 2004).

The simple contrasts of the within-subjects factor revealed a statistically significant difference in self-confidence from pre- to post-testing for the intervention group, but not for the control group. The FPS-CS mean composite scores increase from

the pre-test ($M = 4.24$, $SD = .68$) to the post-test ($M = 4.57$, $SD = .56$) was statistically significant for the intervention group, $F(1, 70) = 31.23$, $p < .0005$, partial $\eta^2 = .31$. The difference in FPS-CS mean composite scores from pre- to post-testing was not statistically significant for the control group ($p = .995$). The simple effects of the between-subjects factor revealed no statistically significant difference in FPS-CS mean composite scores between the intervention group and the control group at either time point. The difference in FPS-CS mean composite scores on the pre-test was not statistically significant ($p = .29$) between the intervention group ($M = 4.24$, $SD = .68$) and control group ($M = 4.40$, $SD = .59$). The difference in scores for the intervention group ($M = 4.57$, $SD = .56$) and control group ($M = 4.40$, $SD = .70$) on the post-test was also not statistically significant ($p = .26$). See Table 5 for mean composite scores for both dependent variables.

Table 5

Mean Composite Scores for Both Dependent Variables

		Pre-Test		Post-Test		
	n	*M*	*SD*	*M*	*SD*	Mean Difference
Perception (FPR-BS)						
Intervention Group	40	3.63	.68	4.07	.63	.44*
Control Group	34	3.82	.55	3.88	.59	.06
Self-Confidence (FPS-CS)						
Intervention Group	38	4.24	.68	4.57	.56	.33*
Control Group	34	4.40	.59	4.40	.70	.00

* $p < .0005$

Summary

This chapter presented the study results. Demographic and professional attribute information for the 74 study subjects was outlined. Next, results for each of the two study hypotheses were presented. Hypothesis one was supported using the two-factor, mixed-model factorial ANOVA. Specifically, FPR-BS mean composite scores demonstrated a statistically significant increase from pre- to post-testing for the intervention group, and the difference in scores from pre- to post-testing was not statistically significant for the control group. Hypothesis two was also supported using the two-factor, mixed-model factorial ANOVA. The FPS-CS mean composite scores showed a statistically significant increase for the intervention group and no change in scores for the control group from pre- to post-testing. The sixth and final chapter will further explore these study results and their implications.

CHAPTER 6

DISCUSSION

This chapter discusses the results of this study. Study findings are elaborated and explored in the context of existing literature, and implications for nursing are presented. Study limitations and recommendations for future research are also provided.

Discussion of the Findings

The purpose of this study was to evaluate the impact of an online learning module on critical care nurses' perception and self-confidence for FPDR implementation with adult patients. It was anticipated there would be an improvement in perception of FPDR from pre- to post-testing for the intervention group who received the FPDR online learning module and no significant improvement in perception for the control group. It was also anticipated self-confidence for FPDR would improve from pre- to post-testing for the intervention group, but not for the control group.

A review of the FPDR literature and theoretical frameworks pertinent to the dependent variables guided the development of the FPDR online learning module. The literature and theoretical frameworks also guided the study methodology. A two-group, pre- and post-test quasi-experimental design with random assignment to the intervention or control group was used to determine the effect of the online learning module on perception and self-confidence. Pre- and post-testing included the FPR-BS to measure perception and the FPS-CS to measure self-confidence. Testing was conducted before and after the assigned online learning module was viewed. Sample demographic and professional attribute information was also collected during pre-testing. The findings of this study are interpreted below. First, the response and attrition rates are briefly

described and discussed. Next, demographic and professional attribute information about the sample is presented and includes comparisons between the intervention and control groups. Lastly, the two study hypotheses are discussed individually and collectively with conclusions provided.

Response and Attrition Rates

It is difficult to determine response rates for research conducted online. In this study, there was no use of an email list to provide a known denominator to calculate an accurate response rate (Lusk, Delclos, Burau, Drawhorn, & Aday, 2007). Rather, this study was advertised through the AACN which is a national professional organization for critical care nurses. It is unknown how many potential subjects received or viewed the study advertisements that were posted on the AACN Critical Care eNewsline, Facebook, and Twitter sites. Instead of presenting a response rate, researchers who conduct online studies often report the number of responses from potential subjects (Zhang, 2000). Advertisements resulted in 202 potential subjects accessing the online study site, and 132 potential subjects (65.3%) then continued on to participate in the study. Subject data for both the pre- and post-test was required for analysis of the two study hypotheses (Penny & Atkinson, 2011); therefore, the final study sample ($N = 74$) consisted of only those subjects who had completed the pre- and post-test (56.1%).

It is important to address the possibility of nonresponse bias by examining the participation rate for potential subjects who entered the study site and the completion rate for subjects who consented to participate. Nurse participation in research studies has been noted to vary widely, with low participation rates common. Further, nurse participation in online studies has been noted to be lower than in studies administered via paper hardcopy

(Chizawsky, Estabrooks, & Sales, 2011; VanGeest & Johnson, 2011; Waltz et al., 2010). Response, or participation, rates greater than 65% are sufficient to reduce the risk of nonresponse bias (Polit & Beck, 2004). In this instance, 65.3% of potential subjects who entered the study information webpage actually consented to participate in the study. Next, incomplete participation in a study can lead to missing data and a reduction in sample size depending upon the study design (Penny & Atkinson, 2011). It has been reported dropout rates, or the rate of attrition, varies widely in online studies with an average rate of 34% (Denissen, Neumann, & van Zalk, 2010). In this study, 43.9% of subjects did not finish both pre- and post-testing. For nurses, the most common reason for lack of participation or attrition has been found to be time constraints (VanGeest & Johnson, 2011). In this study, critical care nurses may not have had the 45 minutes of time estimated for completion of pre- and post-testing, as well as the online learning module. This was not unexpected due to the nature of the independent variable, and thus a priori sample size calculation was conducted to determine the number of subjects required. Subject participation was tracked throughout the four week study period using Qualtrics© in order to monitor the amount of subjects completing both pre- and post-testing. Ultimately, a total sample size of 74 subjects was achieved and this was a sufficient sample size for the statistical procedures used for data analysis. If a larger sample had been required, incentives could have been offered to encourage participation (Alessi & Martin, 2010; VanGeest & Johnson, 2011; Waltz et al., 2010), but this may have made subject anonymity more challenging.

Though conducting research online has its challenges, the nature of the independent variable necessitated an online study. In addition, there were several

advantages noted to conducting the study online. Online research offers the advantage of being less costly because there is no need to mail surveys or gain assistance for data collection (Denissen et al., 2010; Murray & Fisher, 2002; Walker, 2013; Waltz et al., 2010), and this was beneficial to conducting this study. The electronic data collection process using Qualtrics© made data analysis faster and eliminated the need for manual entry of data which decreased the chance for errors (Murray & Fisher, 2002; Waltz et al., 2010). Conducting the study online, coupled with no collection of identifying information, allowed for subject anonymity (Denissen et al., 2010; Walker, 2013; Waltz et al., 2010). Most importantly, the online format, along with advertising through the AACN, gave access to a large national population with the sample characteristics desired (Denissen et al., 2010; Murray & Fisher, 2002; Waltz et al., 2010).

Demographic and Professional Attribute Information

Subjects were asked to complete a demographic and professional attribute form as part of the pre-test (Appendix E). Individual items sought information on sample demographics, general professional attributes, and resuscitative care and FPDR professional attributes. These three components of the demographic and professional attribute form are discussed and interpreted separately, and findings from the intervention and control groups are compared to determine adequacy of random assignment.

Demographic information. The age of the sample in both groups was primarily 25 years to 64 years, and displayed a relatively even spread amongst those years. In the intervention group, 57.5% were age 45 years and older, as were 47% of the control group. In 2008, 45% of RNs in the United States were age 50 and older, and the amount of RNs over the age of 50 years has continually grown for many years (Robert Wood

Johnson Foundation, 2010). The sample appears to be representative of national trends in RN age. In regards to ethnicity, the sample was not diverse and the majority reported they were of Caucasian ethnicity (85% of the intervention group and 94% of the control group). These findings are similar to national data which has shown 83.2% of RNs indicate their race to be white, non-Hispanic (Robert Wood Johnson Foundation, 2010). This study sample also mirrored national trends with respect to gender. At the national level, 6.6% of the RN workforce is composed of males (Robert Wood Johnson Foundation, 2010) and the sample in this study included 5% males in the intervention group and 8.8% males in the control group. The study sample was representative of United States RN demographics and only small differences were noted between the intervention and control groups. See Table 1 for detailed demographic findings.

General professional attributes. General professional attribute information collected from study subjects included degree, years of experience, current job title, specialty certification, and professional organization membership (Table 2). Prior correlational research has found associations between these professional attributes and support for FPDR. Though correlations were not evaluated as part of this study, sample characteristics on these professional attributes were collected to describe the sample and compare the intervention and control groups.

An inconclusive relationship between level of educational degree and support for FPDR has been noted with some studies (Basol et al. 2009; Chapman et al., 2011; Ellison, 2003) finding a significant relationship and others finding no significant relationship (Bassler, 1999; Fallis et al., 2008; Meyers et al., 2004; Twibell et al., 2008). In this study, 45% of the intervention group and 52.9% of the control group reported their

highest earned nursing degree was a baccalaureate degree. This is considerably higher than the national mean of 36.7% (Robert Wood Johnson Foundation, 2010). Additionally, 23.5% of the intervention group and 29.4% of the control group held advanced degrees (Master's or Doctoral degrees). In 2008, only 13.2% of RNs in the United States held advanced degrees (Robert Wood Johnson Foundation, 2010); however, the amount of nurses seeking baccalaureate and graduate level education has seen considerable annual growth in recent years (Robert Wood Johnson Foundation, 2013). It appears this study sample was more educated than the national average, yet the intervention and control groups were fairly similar in level of degree attainment. Since the correlation between degree and support for FPDR is unclear, it is unknown what influence this may have had on the study results.

The study sample was also found to be very experienced. In fact, 42.5% of the intervention group and 35.3% of the control group reported having more than 20 years of RN experience, and 70% of the intervention group and 55.9% of the control group had more than 10 years of RN experience. In this sample, approximately one-fourth of subjects reported their current job title to be in an advanced role. This may help explain the high number of years of experience noted among the subjects. It was found that 25% of the intervention group and 29.4% of the control group held management, education, or advanced practice nursing roles, with the remainder of subjects indicating their current job title was that of bedside nurse in a critical care setting. The relationship between years of experience is inconclusive with one study finding a link (Chapman et al., 2011) and several others showing no correlation (Fallis et al., 2008; Feagan & Fisher, 2011; Fulbrook et al., 2005; Twibell et al., 2008). Minimal evidence also exists to support a

correlation between better FPDR acceptance and non-clinical nursing positions (Fullbrook et al., 2005). It appears more experienced nurses, as well as those in non-clinical positions, may have been more interested in the topic of FPDR and thus similarly composed both of the groups in this study. Further research is needed to determine the effectiveness of online learning on less experienced bedside critical care nurses who are providing resuscitative care to patients.

Specialty certified nurses have been shown to be more supportive of FPDR than those who are not (Basol et al., 2009; Chapman et al., 2011; Ellison, 2003; Twibell et al., 2008). Also, RNs who maintain membership in a professional organization are more likely to support FPDR (Twibell et al., 2008), and this relationship may be stronger if the professional organization has issued a FPDR position statement (Fallis et al., 2008) such as the AACN's family presence practice alert (AACN, 2010). In this study, 62.5% of the intervention group and 64.7% of the control group reported they were specialty certified, with 19 out of 40 subjects in the intervention group and 17 out of 34 subjects in the control group being CCRNs. This type of certification is consistent with the desired sample of critical care nurses. Further, 92.5% of the intervention group and 94.1% of the control group reported membership in a professional organization. The majority of subjects were AACN members (30 out of 40 subjects in the intervention group and 26 out of 34 subjects in the control group). Such membership is consistent with the desired sample and the use of the AACN to advertise the study. However, further study is needed to determine the impact of online learning on critical care nurses who are not CCRN certified or AACN members. The specialty certification and professional organization membership characteristics of this sample, which were similar in both groups, may help

explain why perception and self-confidence scores were positive in both groups on the pre-test as discussed in the section addressing the study hypotheses findings.

Resuscitative care and FPDR professional attributes. Information pertaining to subjects' exposure to resuscitative care and education, and to FPDR experience and education was also collected (Table 3). Nurses have been found more supportive of FPDR if they are experienced in CPR (Feagan & Fisher, 2011). Prior CPR or cardiac arrest code experience, participation on Code Blue or Rapid Response teams, and obtainment of ACLS certification can provide information on subjects' resuscitative experience and education. All subjects were found to have had prior CPR or cardiac arrest code experience. In fact, the great majority (82.5% of the intervention group and 82.4% of the control group) had such experiences more than 20 times in their career. Additionally, 95% of the intervention group and 94.1% of the control group had participated on a Code Blue or Rapid Response team. During rapid responses there is prompt and aggressive care to prevent a need for resuscitation, while resuscitative care is performed during a code blue (Agency for Healthcare Research and Quality, 2012). These findings demonstrate the subjects in this study were experienced with CPR and other resuscitative care measures, which is consistent with critical care nursing. Lastly, 92.5% of the intervention group and 88.2% of the control group reported being ACLS certified. ACLS certification is obtained following education on resuscitative care and demonstration of resuscitation knowledge and skill (AHA, 2010b). In this study, the majority of subjects were ACLS certified and therefore have been exposed to resuscitative education. The impact of such resuscitation experiences and education on scale scores in this study is not known as there is lacking prior correlational research.

However, the positive scores on the FPR-BS and FPS-CS pre-tests could have been due to prior resuscitative experience and education, and further research on this relationship is warranted.

In reference to FPDR exposure and experience, information was obtained about presence of a FPDR facility or unit policy, prior FPDR education, and clinical experiences with FPDR. Only 27.5% of the intervention group and 32.4% of the control group reported their facility or unit had a written policy on FPDR. While less than one-third of the total study sample reported presence of a FPDR policy, this percentage has sharply increased since MacLean et al. (2003) reported only 5% of emergency department and critical nurses in a national sample worked in a facility with a FPDR policy. It appears the presence of FPDR policies has grown over the last decade though continued growth is still warranted. Rates of prior FPDR education seem to also be increasing in the United States. Feagan and Fisher (2011) found 27% of nurses in their study had received prior FPDR education; whereas in this study 45% of the intervention group and 38.2% of the control group had previously attended a class or received education about FPDR. Though this increase in FPDR education is encouraging, it is important to note Feagan and Fisher (2011) studied nurses from various units and this study focused on critical care nurses who because of their frequent exposure to CPR may have been more likely to attend FPDR education opportunities than other acute care nurses. The presence of policy and FPDR educational experiences of this sample may also have contributed to the positive perception and self-confidence scores noted on the pre-test as discussed in the section on study hypotheses findings; however, it is also likely

the high rate of prior FPDR experience among subjects may have impacted their pre-test scores.

Previously, MacLean et al. (2003) found 36% of their sample of emergency department and critical care nurses had taken family to the bedside during resuscitation in the preceding year. Also, Twibell et al. (2008) found 67.7% of acute care nurses surveyed had never invited FPDR. In this study, subjects in both groups were found to be more experienced with FPDR and in inviting family in the room for FPDR. At least once in the past year, 72.5% of the intervention group and 73.5% of the control group had experienced the presence of family in the room during resuscitation. Also, 57.5% of the intervention group and 55.9% of the control group reported they had asked family to come into the room during resuscitation in the past year. Further, only 32.5% of the intervention group and 23.5% of the control group had never invited FPDR in their career. It appears FPDR is more common in bedside practice since the MacLean et al. (2003) and Twibell et al. (2008) studies. However, the amount of subjects in this study who had never initiated FPDR or who had only initiated it 1 to 5 times during their career was 75% for the intervention group and 67.6% for the control group. FPDR may be more common; however, it does not appear to be routine in critical care units where 45% of adult in-hospital resuscitations occur (Morrison et al., 2013). The increased exposure to FPDR found in this study may have contributed to positive scores during pre-testing. Lastly, subjects were asked how often family made requests for FPDR and 62.5% of the intervention group and 76.5% of the control group indicated that in the past year they had never received such a request from family. This finding is similar to that of MacLean et al. (2003) who found 36% of nurses had received such requests in the year preceding

their study. Many families may not be aware of FPDR as a concept and therefore are not making requests for it. Further study regarding whether nurses initiate FPDR only after the family makes such a request is important, as Booth et al. (2004) found half of their sample required the family to make a request for FPDR prior to initiating it.

Hypothesis One

Hypothesis one stated there would be an improvement in critical care nurses' perception following the FPDR online learning module. More specifically, it stated there would be a significant mean composite score increase on the FPR-BS from pre- to post-testing for the intervention group, but no significant increase for the control group. Analysis using the two-factor, mixed-model factorial ANOVA revealed a significant increase in the FPR-BS mean composite score for the intervention group. Mean composite score increased from 3.63 to 4.07 on a 5-point Likert scale and this was a statistically significant improvement in the intervention group's perception of FPDR ($p <$ .0005). Further, the effect size was $\eta^2 = .53$, which is a large effect size according to Cohen (1992). Control group mean composite score also increased slightly from 3.82 to 3.88; however, this was not a significant change ($p = .23$). This demonstrates that for this sample of critical care nurses, the FPDR online learning module intervention was effective at improving perception of FPDR. It also must be considered that despite random assignment, the control group's mean composite score on the pre-test (3.82) was higher than that of the intervention group (3.63) and perhaps this could account for the lack of a significant change in score within the control group. However, between-groups statistical analysis did not detect a significant difference in pre-test mean composite scores between the intervention and control groups ($p = .19$).

It is important to discuss possible reasons for detection of a significant change in perception scores in the intervention group and not in the control group. The FPDR online learning module intervention received by the intervention group specifically addressed the risks of FPDR commonly perceived by nurses and provided evidence-based information to dispel each of these risks. Additionally, instant feedback with evidence-based information was provided for the benefits of FPDR. Other methods to improve perception included demonstration of professional organization support, research findings, and guided debriefing to reflect on the benefits of FPDR for patients and families. The online learning module received by the control group did not address FPDR at all. There was no discussion of the topic, research support, or any other psychosocial interventions for use during resuscitative care. Instead, factual information on implementing resuscitative care was presented. Results of this study support using the content and educational strategies included in the FPDR online learning module to educate critical care nurses on FPDR in order to enhance their perception of FPDR.

Hypothesis Two

Hypothesis two stated there would be an improvement in critical care nurses' self-confidence for FPDR implementation following the FPDR online learning module. More specifically, hypothesis two stated there would be a significant FPS-CS mean composite score increase from pre- to post-testing for the intervention group and no significant increase for the control group. Analysis using the two-factor, mixed-model factorial ANOVA revealed a significant increase in the FPS-CS mean composite score for the intervention group. The intervention group's mean composite score increased from 4.24 to 4.57 which was a statistically significant improvement in self-confidence for FPDR (p

< .0005) and the effect size was $\eta^2 = .31$ indicating a medium effect (Cohen, 1992). Control group mean composite score did not change from pre- to post-testing and remained at 4.40 for both. These findings demonstrate that for this sample of critical care nurses, the FPDR online learning module intervention was effective at improving self-confidence for FPDR. Again, it must be taken into account that despite random assignment, the control group's FPS-CS mean composite score on the pre-test (4.40) was higher than that of the intervention group (4.24) and this may have permitted more room for growth among the intervention group. However, the control group's mean composite score did not change at all from pre- to post-testing, while the intervention group's score increased. Further, between-groups statistical analysis did not detect a significant difference in pre-test FPS-CS mean composite scores between the intervention and control groups ($p = .29$).

Discussion of possible reasons for detecting a significant change in self-confidence scores in the intervention group and not in the control group is important. As previously discussed, the control group's online learning module did not address the topic of FPDR at all, but rather presented factual information on performing resuscitative care. The FPDR online learning module intervention included content and educational strategies specifically aimed at improving self-confidence level. This included presentation of strategies for FPDR implementation. Sample checklists and policies were offered as tools to aid in implementing FPDR. Additionally, a case study on FPDR implementation was included as a form of simulation because varying forms of simulation have been shown to improve self-confidence (Gordon & Buckley, 2009; Hovancsek, 2007; Kantrowitz-Gordon et al., 2012; Leigh, 2008). Results of this study

support using the content and educational strategies, including simulation techniques that comprised the FPDR online learning module in order to improve critical care nurses' self-confidence for FPDR implementation.

Elaboration on Hypotheses One and Two

Prior research has shown patients and families support FPDR as an option (Clark et al., 2005; Halm, 2005; Hodge, & Marshall, 2009). With findings that 90% to 100% of patients and families are in support (Albarran et al., 2009; Halm, 2005) it is likely continued research will have similar results. More recent research exploring the patient perspective could not be located and this area requires further investigation. However, recent research has provided further evidence families favor FPDR. A recent qualitative study to determine family ($N = 28$) experiences with FPDR in the emergency department following trauma events found families wanted to be present and valued their role in helping the team and comforting the patient (Leske, McAndrew, & Brasel, 2013). No other recent studies were found to focus on family perspectives; however, recent research was found to address family outcomes following FPDR. A cluster-randomized, controlled trial was conducted in France to determine whether offering FPDR as an option during the pre-hospital care of cardiac arrest victims would decrease post-traumatic stress disorder (PTSD) symptoms in the family member (Jabre et al., 2013). The effect of FPDR on the resuscitation effort, the well-being of the healthcare team, and the occurrence of litigation were also assessed. The study included 570 family members ($n = 342$ in the intervention group with FPDR and $n = 228$ in the control group without FPDR) and provided the strongest evidence to date regarding family outcomes following FPDR. At 90 days post-event, the frequency of PTSD symptoms was significantly higher

in those subjects who did not experience FPDR than in those who did ($p = .02$).

Additionally, anxiety and depression symptoms were significantly lower among the family members who experienced FPDR. The effectiveness of resuscitative care, duration of CPR, and survival rate were not impacted by FPDR. There were very few instances where family was in conflict with the healthcare team and there were no legal claims made by any family members participating in FPDR. This study provides strong evidence of the positive psychological effects of FPDR on family members and the absence of risk to the patient and healthcare team (Jabre et al., 2013). Researchers then conducted a one year post-event assessment and found significantly less PTSD symptoms in family members who experienced FPDR than in those who did not ($p = .02$). The incidence of major depressive episodes was also significantly less among family members who had FPDR ($p = .03$), as was the presence of complicated grief ($p = .003$). These findings demonstrate the psychological benefits of FPDR persist (Jabre et al., 2014). Based on these recent findings, it has again been suggested there is a need for an increase in FPDR education (Compton & Fernandez, 2014), as well as creation of FPDR policies and programs (Clark, Guzzetta, & O'Connell, 2013), in order to facilitate healthcare provider acceptance and implementation of FPDR. No further family-focused studies were found; however, recent research on healthcare provider views was located.

Prior research has demonstrated healthcare providers and nurses have mixed levels of support for FPDR (Clark et al., 2005; Critchell & Marik, 2007; Howlett et al., 2010; Redley et al., 2004; Walker, 2007). Two recent literature reviews again demonstrated mixed views and reiterated the perceived risks of FPDR commonly cited by healthcare providers (Porter, Cooper, & Sellick, 2013; Porter, Cooper, & Sellick, 2014).

A recent integrative review also confirmed mixed attitudes among nurses and physicians and concluded the culture of the provider is a major factor (Sak-Dankosky, Andruszkiewicz, Sherwood, & Kvist, 2013). Several recent studies assessing healthcare provider views also demonstrated healthcare provider and nurse views vary according to country and culture. Healthcare provider and nurse views were negative in Saudi Arabia (Al-Mutair, Plummer, & Copnell, 2012; Al-Mutair, Plummer, O'Brien, & Clerehan, 2013), Jordan (Hayajneh, 2013), and France (Belpomme et al., 2013). However, in countries where support has historically been more favorable, such as the United Kingdom (Walker, 2014), Ireland (McLaughlin, Melby, & Coates, 2013), and Australia (Chapman, Bushby, Watkins, & Combs, 2014), FPDR support was mixed with both positive and negative views noted. In the United States, a recent healthcare provider poll was conducted through *The New England Journal of Medicine*. Some 655 votes from journal readers, which included professionals in the United States and 61 other countries were received and of these only 31% were in favor of FPDR (Colbert & Adler, 2013). Lastly, a study conducted in the United States assessed critical care nurses' ($N = 207$) perception and self-confidence for FPDR in order to determine differences according to type of critical care unit. Mean scores demonstrated mixed levels of perception and self-confidence and both varied according to unit type. Only 41% of the critical care nurses surveyed favored FPDR and only 9% had actually experienced FPDR (Carroll, 2014). Clearly, mixed levels of support for FPDR prevail and this impairs its implementation in practice. All of the recent studies and reviews suggested a need for FPDR education (Al-Mutair et al., 2012; Al-Mutair et al., 2013; Carroll, 2014; Chapman et al., 2014; Hayajneh, 2013; Porter et al., 2013; Porter et al., 2014; Sak-Dankosky et al., 2013;

Walker, 2014) and development of protocols and policies (Al-Mutair et al., 2012; Al-Mutair et al., 2013; Belpomme et al., 2013; Carroll, 2014; Chapman et al., 2014; Colbert & Adler, 2013; Hayajneh, 2013; McLaughlin et al., 2013; Porter et al., 2013; Porter et al., 2014) to improve support levels. A more recent literature review investigating the existing evidence with regards to family presence protocols did not reveal any new research studies on FPDR protocols or education even though prior research has shown both can increase FPDR support (Pankop, Chang, Thorlton, & Spitzer, 2013). Despite calls for FPDR education and protocols, no recent research pertaining to either was located.

The research literature has demonstrated a link between perception and self-confidence and nurses' support and implementation of FPDR in their patient care (Carroll, 2014; Chapman et al., 2011; Twibell et al., 2008). Studies have repeatedly shown education can improve nurses' support for FPDR; however, prior research had only investigated the effect of classroom-based learning (Bassler, 1999; Dougal et al., 2011; Feagan & Fisher, 2011; Holzhauser & Finucane, 2007; Norton et al., 2007; Nykiel et al., 2011) or simulation-based learning (Kantrowitz-Gordon et al., 2012; Mian et al., 2007; Pye et al., 2010) in a face-to-face environment. Face-to-face learning has been shown to positively impact nurses' support for FPDR; however, it has limitations such as required time off patient care units and individual instructor topical knowledge and commitment (Harrington & Walker, 2004). Further, it does not promote widespread education of nurses on FPDR. Online learning can help to overcome these challenges. The FPDR online learning module in this study was created using the existing FPDR literature and pertinent theoretical frameworks, and the desired outcomes of improved

perception and self-confidence were met. Perception of many inherent risks and few benefits has been extensively studied because poor perception has been identified as a strong predictor of whether nurses will support and implement FPDR (McClement et al., 2009; Twibell et al., 2008). The FPDR online learning module resulted in a statistically significant increase in perception for the intervention group. Additionally, experience and exposure to FPDR has been shown to result in higher nurse support and higher rates of FPDR implementation. Self-confidence for FPDR can result from practicing its implementation either in the clinical setting, or in this case by way of education using the simulation case study (Twibell et al., 2008). This resulted in a statistically significant increase in self-confidence for the intervention group.

The findings of this study were consistent with findings from previous FPDR educational intervention research. All prior research focused on FPDR education in classroom or simulation settings demonstrated significant improvements in the dependent variables under study (Bassler, 1999; Dougal et al., 2011; Feagan & Fisher, 2011; Holzhauser & Finucane, 2007; Kantrowitz-Gordon et al., 2012; Mian et al., 2007; Norton et al., 2007; Nykiel et al., 2011; Pye et al., 2010). However, there were limitations in the prior research; including use of measurement scales lacking validity or reliability measures, sole reliance on one-group designs, and limited measures of control over study procedures. This study improves the methodological rigor of FPDR educational research because theoretically-grounded dependent variables were measured using reliable scales, a control group was included to demonstrate score increase was due to the intervention and not repeat testing, and control over study procedures was effectively employed through careful design. The findings of this study provide evidence that online learning

can improve critical care nurses' perception and self-confidence for FPDR. However, since this study was innovative and different than prior studies, it makes comparisons of this study's findings to prior study findings difficult. The design, variables, and sample differed from prior FPDR educational research and this limits the ability to make comparisons and determinations about which method of education is most effective. Study replication and confirmation of the positive findings is vital, as well as comparative studies to determine the most effective method of FPDR education. An increase in education is essential for the future of FPDR implementation and practice (Porter et al., 2014), and additional research is vital to determine the most effective educational methods.

Though study results demonstrated significant findings indicating the FPDR online learning module had a positive impact on critical care nurses' perception and self-confidence, it is important to consider alternative explanations for the significant findings (Burns & Grove, 2009; Polit & Beck, 2004). Repeat testing can result in sensitization; the pre-test items can cause a change in subject response regardless of the intervention (Burns & Grove, 2009; Polit & Beck, 2004). Subjects may change their responses on the post-test as a result of the influence of the items on the pre-test. This is especially problematic when subjects are exposed to controversial material in the pre-test (Polit & Beck, 2004) and FPDR is considered a controversial topic (Halm, 2005). It is possible the significant changes in perception and self-confidence among the intervention group were due to repeat testing. However, use of a control group helps determine if changes were due to the intervention or the effect of repeat testing (Polit & Beck, 2004). The non-significant results found for the control group make the possibility of intervention group

changes being due to repeat testing less likely. The control group's mean composite score minimally increased on the FPR-BS with a change of .06, which was found to be non-significant. This indicates the FPR-BS scale items did not themselves cause a change in perception. Similarly, the control group's mean composite score did not demonstrate any change from pre- to post-testing on the FPS-CS; indicating the FPS-CS scale items did not themselves cause a change in self-confidence. Conversely, the intervention group's mean composite scores significantly increased from pre- to post-testing on the FPR-BS (mean change of .44) and the FPS-CS (mean change of .33). Even though these changes could have resulted from repeat testing, the fact that control group scores did not change makes this less likely.

Another alternative explanation for the significant results is that despite random assignment, the control group had higher pre-test scores than the intervention group on both the FPR-BS and FPS-CS. Mean composite scores on the FPR-BS were 3.63 for the intervention group and 3.82 for the control group, and mean composite scores on the FPS-CS were 4.24 for the intervention group and 4.40 for the control group. As the control group scores were higher on pre-testing it is possible that a significant change was not able to be detected among the control group because the scores were already higher and there was less ability to increase, whereas the intervention group had more ability for score increases due to lower mean pre-test scores. It is important to mention post-test scores were higher for the intervention group than for the control group on the FPR-BS (intervention 4.07 and control 3.88) and the FPS-CS (intervention 4.57 and control 4.40), indicating better perception and self-confidence upon study conclusion for the intervention group. In addition, 87.5% of the intervention group had an increase in mean

FPR-BS scores, whereas only 61.8% of the control group had an increase. On the FPS-CS, 73.7% of the intervention group had an increase in mean score and 21.1% remained at a maximum score of 5.00. Whereas, the control group's mean scores indicated 38.2% had an increase in mean score on the FPS-CS and 26.5% remained at a maximum score of 5.00. A lack of statistically significant difference between the two groups on the pre-test, control group scores lower than the intervention group on the post-test, and higher percentages of score increases in the intervention group makes it less likely that the non-significant changes of the control group were due to elevated scores on entry.

This leads to discussion and interpretation of the FPR-BS and FPS-CS scores noted in this study. Four prior studies have utilized the FPR-BS and FPR-CS with healthcare providers, nurses, or nursing students, making score comparisons (Carroll, 2014; Chapman et al., 2011; Kantrowitz-Gordon et al., 2012; Twibell et al., 2008) to this sample possible. On the pre-test, mean FPR-BS scores were 3.63 for the intervention group and 3.82 for the control group. The FPR-BS utilized a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A score of 3 is assigned the label of neither agree nor disagree. Both groups scored slightly above this indifferent label, but not high enough to indicate they agreed with the statements in the perception items. This can be interpreted to mean overall on the pre-test, the critical care nurses in this study did not perceive FPDR negatively, but also did not possess a positive perception. Prior research found scores on the FPR-BS to be 3.48 among nursing students (Kantrowitz-Gordon et al., 2012), 3.15 among mixed acute care unit nurses (Twibell et al., 2008), 3.12 among critical care nurses (Carroll, 2014), and 3.29 among emergency department nurses and physicians (Chapman et al., 2011). The average pre-test score on the FPR-BS for this

study was 3.73, which was higher than scores previously found in research. This may be due to the study sample and its demographic and professional attributes, or perhaps due to an increase in FPDR acceptance in past years. Also, many subjects in this sample had previously been exposed to education on FPDR or had prior FPDR experiences in practice perhaps conferring increased awareness of the risks and benefits and first-hand knowledge of such through their prior FPDR experiences. This may have also been true of self-confidence for FPDR. Mean FPS-CS scores were 4.24 for the intervention group and 4.40 for the control group on the pre-test. The FPS-CS also utilized a 5-point Likert scale which ranged from 1 (not at all confident) to 5 (very confident). A score of 4 is assigned the label of quite confident, which describes this study sample's level of self-confidence on the pre-test. Prior research found scores on the FPR-BS to be 3.42 for nursing students (Kantrowitz-Gordon et al., 2012), 3.65 for mixed acute care unit nurses (Twibell et al., 2008), 3.94 for critical care nurses (Carroll, 2014), and 3.79 for emergency department nurses and physicians (Chapman et al., 2011). The average FPS-CS pre-test score for this study was 4.32, which was also higher than scores previously found in research and this may be due to the sample's demographic and professional attributes or due to increased FPDR in practice at this time. The majority of this study's sample had prior FPDR experience, which may have contributed to higher self-confidence levels. It is interesting to note that in this study, and all prior studies using the FPR-BS and FPS-CS, scores for self-confidence were higher than scores for perception. This may indicate that although nurses are not fully accepting of FPDR and its benefits, they are comfortable in its implementation as they are seeing it in their practice.

The study results and their interpretation, coupled with prior and recent research findings suggest FPDR is a topic important to patients and families, yet controversial amongst nurses and healthcare providers. Education has been shown to be effective at improving FPDR support. The results of this study demonstrate online learning is a feasible and effective method for delivering FPDR education to critical care nurses.

Implications for Nursing

Providing families the option of FPDR, as a component of family-centered care, is consistent with patient and family needs and preferences (Clark et al., 2005; Halm, 2005; Hodge, & Marshall, 2009). Research has shown patients and families desire for the option of FPDR (Halm, 2005). Continued research has demonstrated the positive impact FPDR can have on family outcomes (Jabre et al., 2014). Yet, research has shown nurses have low levels of FPDR support and this has resulted in low levels of practice implementation (MacLean et al., 2003; Twibell et al., 2008). It is vital nurses' support for FPDR and its implementation in practice improve so patient and family needs can be met. Prior research has demonstrated FPDR education, in the form of classroom or simulation delivery, can improve nurses' support and intent to implement FPDR (Bassler, 1999). The findings of this study reveal online education can improve critical care nurses' perception and self-confidence for FPDR. These findings have led to several implications and recommendations for nursing.

The major finding of this study was that the FPDR online learning module significantly improved critical care nurses' perception and self-confidence for FPDR. Therefore, hospital management seeking to improve FPDR support and implementation in critical care areas should consider the option of educating critical care nurses through

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the use of online learning. Nurses have become familiar with the use of computerized learning for their continuing education needs (Harrington & Walker, 2004). If the principles of best practices in online education are addressed, online learning can promote learner performance and satisfaction, accommodate diverse learners, and encourage active self-examination of knowledge and competence (Billings et al., 2001; Chickering & Ehrmann, 1996; Jeffries, 2005). Further, online learning has been shown to minimize the challenges of face-to-face education of nurses who have multiple personal and professional demands (DeYoung, 2003; Harrington & Walker, 2004) and eliminates large numbers of nurses from needing to leave patient care areas to attend classes (Harrington & Walker, 2004). Also, online learning does not require individual instructors to have topical knowledge or support (Harrington & Walker, 2004) for controversial subjects and this has been noted to be an issue with regards to FPDR education (Kantrowitz-Gordon et al., 2012). Lastly, online learning can be used to educate larger numbers of nurses (Billings & Connors, n.d.; Harrington & Walker, 2004) which can promote more widespread adoption of FPDR into practice. Online learning has the potential to overcome the challenges of face-to-face education, and hospital management should consider it to educate critical care nurses on FPDR. Additionally, hospital management should offer work or educational time, compensation, and technological resources to critical care nurses so it is clear that FPDR online learning is a priority for the institution. FPDR education should be a priority as findings in this study demonstrated less than half of all subjects had received any prior FPDR education even though critical care nurses routinely participate in resuscitative care. Support for FPDR must be demonstrated by hospital management through the creation of facility policies,

something that less than one-third of subjects in this study reported having available to them. Also, FPDR online learning should include discussion of FPDR policy components, as the intervention module did in this study.

Additionally, professional organizations should consider the value of including an online learning module on FPDR in their current continuing education offerings for members. The AACN and ENA have created presentations, practice alerts and guidelines, and other tools to help their members learn about FPDR and to promote its implementation into clinical practice (AACN, 2010; ENA, 2012). Addition of a FPDR online learning module to existing available continuing education resources could increase convenience and accessibility for learning on the topic, as well as promote active learning, accommodate diverse learners, and encourage reflection on individual knowledge (Billings et al., 2001). In addition, the AHA should consider including a FPDR online learning module to their existing online learning resources for ACLS certification (AHA, 2014a) in order to increase exposure to FPDR among resuscitative care providers.

This study demonstrated online learning was effective at improving critical care nurses' perception and self-confidence for FPDR. However, this study did not compare online learning to other methods of FPDR education, such as classroom and simulation learning. Additional study is needed to compare the various educational methods. In the meantime, online learning about FPDR is an option but does not have to replace current methods of FPDR education in use at individual facilities. Facilities with FPDR classroom or simulation learning programs in place should consider review of the

benefits of online learning and may choose to augment existing education methods with online learning.

Limitations

Limitations are methodological weaknesses that can decrease the validity and generalizability of study findings (Burns & Grove, 2009). As with any research study, there are limitations of this study. Limitations were identified and minimized as much as possible prior to conducting the study. Limitations noted in prior FPDR educational research were minimized in this study through the use of a two-group, pre- and post-test quasi-experimental design that included random assignment to the intervention or control group. Other methods to increase internal validity included the study of dependent variables grounded in theory and linked to the FPDR literature, measurement using established scales with demonstrated validity and reliability, and use of appropriate statistical analysis procedures (Burns & Grove, 2009; Polit & Beck, 2004). Study procedures also increased the internal validity of this study. For example, the threat of history was minimized by using a small time period between pre- and post-testing. Additionally, access to the module received by the other group was restricted until after completion of both pre- and post-testing (Burns & Grove, 2009; Polit & Beck, 2004). These measures of control were necessary to determine the effect of the FPDR online learning module; however, they also limit the ability to evaluate long-term or sustained changes in critical care nurses' perception and self-confidence for FPDR, which is a limitation of this study.

Another limitation was the use of repeat testing. Sensitization can occur during pre-test data collection, especially when dealing with attitudes or opinions, and this can result in changed levels of response on the post-test regardless of the intervention. Use of a control group allowed for better examination of changes in perception and self-confidence and interpretation of whether they were due to the FPDR online learning module intervention or repeat testing (Burns & Grove, 2009; Polit & Beck, 2004). No significant changes in control group scores indicates the changes seen in the intervention group were likely due to the intervention itself and not due to repeat testing.

An additional limitation lay in the use of an asynchronous online learning module as the intervention. Subjects' duration of time in each unit of the online learning module could not be controlled and therefore the depth of their learning could not be controlled (Tallent-Runnels et al., 2006). While programming the post-test to open after completion of the online learning module ensured that all units were opened, it did not ensure that they were read. In addition, subjects in this study were not asked to evaluate the online learning module to gather information on their views about module format, length, or educational strategies. This is a limitation and future research should seek such information to promote refinement of the online learning module to ensure learner needs are met (Billings et al., 2001).

Threats to generalizability must also be examined. Selection of subjects can be considered a limitation of this study. Although subject recruitment included advertisement through a national organization that allows members and non-members to access its online publications and media sites, the study findings may not represent those of critical care nurses who do not maintain subscriptions to the AACN sites used for

study advertisement (Burns & Grove, 2009; Polit & Beck, 2004). Further evaluation of critical care nurses who are not affiliated with the AACN is important. Next, random assignment to groups strengthened this study; however, the use of convenience sampling through study advertisements on the sites of one professional organization was a limitation. Data on the amount of subjects who were AACN members was reported at approximately three-fourths of the sample. Additionally, adequacy of sampling can impact the external validity of any study and is considered a limitation of this study. If an adequate amount of the subjects do not complete the study, external validity is diminished. A short time period between pre- and post-testing attempted to minimize attrition, and data on the amount of subjects who did not complete the entire study was reported. However, 43.9% of subjects did not complete the pre- and post-testing and nonresponse bias may have resulted, which is a study limitation. To ensure an adequate amount of study subjects, a priori sample size calculation was conducted (Burns & Grove, 2009; Polit & Beck, 2004) and the required sample size was achieved.

Recommendations for Future Research

Based on the findings of this study and its reported limitations, as well as the existing FPDR research literature, the following are recommendations for future research. This study demonstrated online learning can have a positive impact on critical care nurses' perception and self-confidence for FPDR. As this is the first study to evaluate FPDR online learning, replication is recommended to build a stronger evidence-based practice for FPDR education. Replication studies should seek to obtain a larger sample size to ensure generalizability (Burns & Grove, 2009; Polit & Beck, 2004). Replication studies should also seek to gain a more culturally diverse sample (Duran et al., 2007), as

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the impact of culture on FPDR support is unclear. The study should also be replicated to determine if online learning has an effect on a sample composed of critical care nurses who are not primarily AACN members. This would enhance generalizability to all critical care nurses in the United States (Burns & Grove, 2009; Polit & Beck, 2004).

This is the first known study to evaluate the effect of FPDR online learning on critical care nurses' perception and self-confidence. This educational intervention should also be evaluated with other sample populations. It has been shown emergency department nurses are more supportive of FPDR than nurses in critical care and other acute care settings; however, the effect of FPDR online learning should be studied in this population due to its high incidence of resuscitative events initiated both in-hospital and continued after out-of-hospital initiation (Go et al., 2013). Additionally, although 45% of cardiac arrest cases among hospitalized adult patients occur in critical care settings (Morrison et al., 2013), CPR is implemented in other non-critical care settings as well. FPDR should not be restricted only to critical care and emergency department settings, and research on the effect of FPDR online learning on nurses in all acute care settings is warranted (Knott & Kee, 2005; Twibell et al., 2008). Further, this study focused on critical care nurses who provide care to adult patients. Study of the impact of FPDR online learning should be conducted with pediatric nurses who also provide resuscitative care (Dingeman, Mitchell, Meyer, & Curley, 2007). Next, resuscitation is an interdisciplinary act (Soar et al., 2010) and research on the impact of FPDR online learning should also be undertaken with various healthcare providers. Also, research on the effect of FPDR online learning should be conducted with nursing students. Exposing nursing students to FPDR education may promote integration of FPDR into their future

nursing practice (Norton et al., 2007; Kantrowitz-Gordon et al., 2012). Further, the support of nursing management is instrumental if FPDR is to be an institutional priority, and for the development of FPDR policies and protocols. However, research on their views is scarce and has been combined with the views of bedside nurses rendering little evidence about the unique FPDR views of nurses in management. Research on the impact of FPDR online learning should be conducted with this population. In order to study the effect of the FPDR online learning module in these other sample populations, content should be altered appropriately to reflect the patient populations or resuscitative care experiences the sample population under study is likely to have encountered. Continued educational research should consider using the FPR-BS and FPS-CS as they are grounded in theory, relate to FPDR, and are reliable and valid. Further, accumulation of research using the same scales allows for comparisons across studies.

It is also recommended that other methods of FPDR education continue to be explored. Limited research on the effectiveness of classroom, simulation, and other educational interventions has been conducted to date (Mian et al., 2007). Comparisons of the effect of varied methods of FPDR education should be investigated to determine the best method or combination of methods. Ideally, such research would be conducted with a large sample in the form of a four arm, quasi-experimental study to compare the effect of educational interventions (control, classroom-based, simulation, and online learning) on nurses' perception and self-confidence for FPDR. In addition, the long-term effect of FPDR education on perception and self-confidence should be studied. Few studies have sought to determine the sustained effect of FPDR education, as is the case with this study. Future studies that investigate long-term changes should seek to determine the sustained

effect of one educational session such as in the case of this research study, and should also consider studying the effect of repetitive educational sessions. Lastly, the effect of FPDR education on nurses' actual FPDR implementation with patients must be evaluated. Investigating the impact of FPDR programs, protocols, and policies is also important and requires additional study.

In addition to the need for further FPDR educational research, it is vital for additional evidence on the benefits of FPDR for patients, families, nurses, and other healthcare providers. Most specifically, there is a definite need for further study on patient and family preferences for FPDR because the views of patients and families are central to the provision of patient- and family-centered care (Mitchell et al., 2009). Patient and family outcomes following FPDR are also important to explore with further research. Research focused on patient and family outcomes can support the importance of offering FPDR as an option, as well as reassure nurses and other healthcare providers FPDR is not associated with negative effects on the patient or family (Jacques, 2014). The majority of research on nurses and other healthcare providers has focused on existing perceptions and attitudes (Twibell et al., 2008), and it is clear that mixed views and sub-optimal rates of FPDR implementation prevail (MacLean et al., 2003). Additional evidence regarding their views on successful implementation and protocols for FPDR implementation is important for proper clinical implementation of this family-centered practice (Duran et al., 2007). In addition, correlational research is important to better understand the demographic and professional attributes that predict support for FPDR. Such research can help to refine FPDR education methods and denote important target populations for education.

Conclusion

This final chapter presented a summary of the study and its results. Study findings were explored; including response and attrition rates, sample demographic and professional attribute information, and results and conclusions pertaining to the two study hypotheses. Study findings were explored in the context of prior and recent research. Major findings demonstrated the FPDR online learning module had a significant and positive impact on critical care nurses' perception and self-confidence for FPDR. Based on this finding, suggestions and implications for nursing were described. The study limitations were highlighted and recommendations for future research provided.

In light of the support for FPDR among patients and families, and research findings demonstrating better outcomes for families who experience FPDR, enhancing critical care nurses' perception and self-confidence for FPDR is vital. Education is an intervention that has shown to positively impact nurses' support for FPDR. This study added to the existing body of evidence by finding online education is an effective method for providing critical care nurses with FPDR education.

APPENDIX A: LITERATURE REVIEW MATRIX

Patient-Focused Studies

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Albarran et al. (2009)	Descriptive. To compare FPDR preferences of CPR survivors and emergency patients. No theory.	United Kingdom: 4 large hospitals. $N = 61$ ($n = 21$ intervention, $n = 40$ control).	Interviews, 20 item questionnaire. Chi square.	Both intervention/control favor FPDR. Family should have option (90%, 88%). Relatives benefit (67%, 48%). Should seek patient preference at admission (71%, 60%). Unconcerned about confidentiality (90%, 75%). No group differences significant (likely due to small sample). Limitations: Small sample (due to low CPR survival). Pilot study- increased power with 1:2 ratio. Questionnaire not validated. No minority representation.
Duran et al. (2007)	Descriptive. To describe family presence attitudes regardless of prior family presence. Theory: Family-centered care.	United States: 1 urban hospital- emergency and critical care. $n = 62$ patients. 95% response rate.	Adapted Meyers et al. (2004) survey. Cronbach $\alpha = .89$. Summed scores converted to mean (1-4) family presence attitude score (M-FPAS).	Patients: M-FPAS 2.65. 29% had previous family presence experience. No difference if previous family presence experience. Patients felt it was their right, want option, and it would be comforting. Limitations: Lacked ethnic diversity.
Eichhorn et al. (2001)	Qualitative. To explore patient perspective of family presence. Theory: Caplan Family Stress Theory.	United States: 1 emergency department. $N = 9$ ($n = 8$ invasive procedures, $n = 1$ FPDR). 62 were eligible- 90% of CPR died.	Semi-structured questionnaire with 1 interviewer 2 months after event.	No negative findings. Felt comforted, less alone, and supported. Humanizes patient and reminds of personhood. Maintains family connectedness. Family advocated. It is their right. Causes family distress, but outweighed by coping, informational benefits. None uncomfortable. Important to prepare family with expectations. Limitations: Small sample and not diverse.
McMahon- Parkes et al. (2009)	Qualitative. To explore FPDR views/ preferences of resuscitated and emergency patients. No theory.	Europe: 4 large hospitals: emergency, critical care, and medical patients. Patient $n = 21$ resuscitated, $n = 40$ emergency.	Face-to-face interviews in hospital with 1 interviewer.	Patients with/ without resuscitation favor FPDR. Family support might influence survival. Acknowledge benefit to family (dispels misconceptions, anxiety, grief), but patient care important. Get patient FPDR preference if possible. Unconcerned over confidentiality. Limitations: Small sample. No minority representation.

Family-Focused Studies

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Doyle et al. (1987)	Descriptive, retrospective (Qualitative comments). To determine how families with FPDR resulting in death felt about FPDR. No theory.	United States: non-teaching, urban emergency department. n = 47 surveys returned (73%) by family of 30 patients.	Retrospective survey sent to families at least 4 months after the death.	100% felt did everything possible, 94% would do again, 35% FPDR is their right, 76% adjustment to death/grieving easier, 64% helpful to patient. Comments: Cannot imagine not being a part of it, able to say goodbye, saw everything was done, patient knew I was there. No patient outcome differences. No disruptive behavior or interference. Limitations: Small sample.
Duran et al. (2007)	Descriptive. To describe family presence beliefs/ attitudes regardless of prior experience. Theory: Family-centered care.	United States: 1 urban hospital emergency and critical care units. Family member n = 74, response rate 99%.	Adapted Meyers et al. (2004) survey. Summed scores converted to mean (1-4) family presence attitude score (M-FPAS).	Family: M-FPAS 2.9. 31% with prior family presence- 3.06 with prior experience, 2.9 without (significant). With experience 89% said helpful, 95% would do again. Felt is a right, want option, better understanding of condition, seeing all was done, can control emotions and tolerate the scene. Limitations: Not diverse sample.
Holzhauser et al. (2006)	Experimental. To determine effects of FPDR on family members. No theory.	Australia: emergency department in teaching hospital. Intervention (FPDR) n = 58, control (waiting room) n = 30.	Randomized on arrival with sealed envelope. Survey 1 month after event. Created survey (piloted, reliability with degree of researcher agreement).	FPDR: 100% glad were present, 67% of control would prefer FPDR. Coping with outcome: Intervention 96% felt assisted to come to terms with outcome, control 71.2% FPDR would have helped them. Survivors- 85% thought presence helped patient. Comments: wonderful idea, helped with grieving. Limitations: No power calculation due to lack of prior research.
Hung & Pang (2010)	Qualitative. To determine preferences of family members whose relatives survived CPR. No theory.	Hong Kong: large emergency department. N = 18 (32 invited) family members with patient surviving CPR. None with FPDR.	1 researcher with face-to-face interviews, open-ended questions.	Strong FPDR preference. Desire: emotional connection, touch/talk to patient, patient would benefit, be there for final moments, be informed- not knowing caused fear, know all is done, provide information, know to control emotions and not disrupt. Limitations: Studied only CPR survivors- prevent distress to bereaved.
Leung & Chow (2012)	Descriptive. To examine FPDR attitudes. Theory: Health belief model, reasoned action, and self-efficacy.	Hong Kong: 1 large hospital, 2 critical care units. n = 69 family members (related by blood or marriage).	Adapted survey. Tested for validity and reliability, pilot tested. t-test/Mann-Whitney	Families: 14.5% had prior FPDR experience- no difference. 79.7% of family agree or strongly agree with FPDR. Significant difference between staff and family in all domains of survey. Limitations: Use of 1 hospital.
Meyers et al. (1998)	Mixed method: Retrospective, descriptive telephone survey. To determine FPDR desires and beliefs of families who experienced death of loved one. No theory.	United States: Large teaching hospital emergency department. Convenience sample N = 25 family members of 18 patients who died.	Expanded Foote Hospital open-ended questions. 2 did telephone surveys. Inter-rater reliability and content experts. Conducted at mean 7.5 months after death.	80% would have wanted FPDR, 96% families should have option, 68% FPDR can help patient, 64% FPDR can help sorrow. Qualitative: Important during final moments, want to see everything done, it is a right, see CPR on TV and can handle it, able to say goodbye. Concern over hinder care, not what would see. Limitations: Small sample.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Meyers et al. (2004)	Mixed method. To determine family presence attitudes and experiences, perceived benefits/issues. Theory: Holistic nursing.	United States: 1 large hospital emergency department. Convenience sample: Family member $n = 39$ 24 emergency invasive procedures, 19 CPR (CPR mortality 90%).	Developed: family presence attitude scale- 37 items for families. Cronbach $\alpha = 0.92$. Fisher's exact or chi-square test, t-test or ANOVA for attitude scores. Families interviewed and surveyed 2 months after to allow for crisis resolution.	Reported data together: No significant differences in gender, age, education, or attitude responses. Mean attitude score= 1.54 (1-4 with 1 most favorable). 97.5% felt a right and would do again. 100% felt important and helpful, 95% helped to comprehend seriousness of situation and know all was done, 95% helped the patient, 95% not too upsetting. Qualitative: needed to be there, obligation and right to provide support, natural, powerful, difficult but would rather be there. Knowledge decreased worry, minimized agony of waiting, helped face reality, lessened helplessness, facilitated grieving. Focused on comforting role, not trauma of event. Helped with patient information, consents, and other family. Reminder of personhood makes staff accountable. Able to say goodbye, spiritual. Understood need for appropriate behavior, need to screen for this- presence not to impede care. Limitations: Interviews with families 2 months later- impaired recall.
Ong et al. (2007)	Descriptive. To compare FPDR attitudes of public (visiting family members) to medical staff. No theory.	Singapore: 1 emergency department. Convenience sample: visiting family $n = 145$, response rate 93.5%. Compared to prior data from staff.	Interviewed families when visiting. 17 item tool modified from step 1 of study. Differences in 2 groups analyzed with chi-square or Fisher's exact test.	Support FPDR: 73.1% of families and 10.6% of staff. Would help grieving: 68.8% of families and 35.6% of staff. Medical staff concerned families would have traumatic experience and would cause stress to team. Most want to be allowed in immediately. 6.2% of public have made FPDR request. Limitations: Relatives may be anxious in emergency department, not general population.
Robinson et al. (1998)	Experimental Pilot. To determine family desires for FPDR and adverse psychological effects on bereaved. No theory.	United Kingdom: 1 emergency department. Intervention given FPDR option (13 patients- 3 survived and 2 lost to follow up, $n = 8$). Control to relatives' room without FPDR (12 patients- 2 lost to follow up, $n = 10$. Power analysis: $n = 64$ per group for moderate effect.	Randomized by sealed envelope on arrival. 1 family member per patient with chaperone for explanations/support. Survey: FPDR desire and 5 psychological scales: anxiety, depression, grief, intrusive imagery (PTSD), and avoidance behavior (PTSD). Administered 1 and 6 months post-event.	Intervention: 0% frightened or had to leave room, 7/8 felt grief eased by sharing final moments, 100% content with FPDR decision. Felt reality in FPDR less distressing than imagining outside of room. No CPR interruption. Median scores for 5 of 8 psychological measures were less for intervention at 3 and 9 months ($p = 0.73$). Grief scores lower for intervention at 9 months ($p = 0.084$). Absence of negative effects despite no significant findings. 3 patients who survived: content relative present, felt supported, and none believed confidentiality or dignity compromised. Limitations: Stopped study early because randomization process at risk of being altered by staff convinced of FPDR benefits. No psychological tests reached significance.

Healthcare Provider-Focused Studies

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Basol et al. (2009)	Descriptive, Correlational. To determine provider attitudes, beliefs and concerns for FPDR and invasive. No theory.	United States: 1 hospital, multiple settings/units. $N =$ 625 (response rate 45%). 78.8% RNs.	Altered ENA staff assessment tool (scale of 1-5). Cronbach α = .63 and .77.	47% of RNs with FPDR experience. Believe in option for invasive procedures 3.11, FPDR 3.07. Significant correlations: positive attitude to degree, certification, critical care/emergency department, gender, profession. Support a FPDR policy: 61.3% total, 46.3% physicians, 65.4% RN, 53.3% respiratory therapist, 66.7% spiritual care. Comments: Need support person, culture makes a difference, pediatrics different than adults, need family follow up. Next designed policy, educated, implemented without negative experiences. Limitations: Not diverse. Did not specify differences in RN settings.
Booth et al. (2004)	Descriptive. To determine how widely FPDR is practiced in the United Kingdom and identify obstacles to FPDR implementation. No theory.	United Kingdom: $N =$ 162 emergency departments (100% response rate).	Telephone survey. Invited most senior RN or physician to answer telephone questionnaire.	FPDR allowed by 79% for adults, 93% for children. 50% invite relatives in, rest allow if relative requests. 21% do not permit FPDR (never asked, concern for family trauma, fear of distraction, legal concerns, lack of space and chaperones). 11% had written FPDR protocol. Benefits: 48% accept all possible was done, 48% accept the death, 38% help with grieving. Problems: 24.2% family distress, 35% family adverse effect, 13.8% attempted to interfere, 10.6% team distracted, 8.5% inappropriate demands. 13 instances cited in large number, none planned to stop FPDR. Limitations: 1 setting.
Chapman et al. (2011)	Descriptive. Replication study to evaluate validity and reliability of Twibell et al. (2008) scales on perception and self-confidence for FPDR. Theory: Family-centered care.	Australia: 1 emergency department. $N =$ 114 (response rate 51.6%). $n =$ 77 nurses, $n =$ 25 physicians, $n =$ 12 unspecified.	Slightly altered FPR-BS and FPS-CS due to physician inclusion. Chi-square, Mann-Whitney, ANOVA, spearman rank correlations.	Agreed FPDR was a right of all families (61.4%) and patients (69.3%). 47% had invited FPDR. Correlations: FPR-BS score to degree, certification, and times FPDR invited. FPS-CS score to age, degree, years in role, certification, and times FPDR invited. Highest significance was times invited: FPR-BS if never = 2.94, 5 or less = 3.52, and >5 = 3.77, for FPS-CS = 3.37, 3.98, 4.46 respectively. No difference between RN and physicians. Limitations: 1 hospital. Validated scales.
Davidson et al. (2011)	Qualitative. To explore the inhibitors and enhancing factors for FPDR from perspective of nurses and physicians. No theory.	United States: emergency department of 1 large hospital. $N =$ 12 (did not specify amount of nurses and physicians).	Interviews by 2 researchers. Created visual model of enhancers and inhibitors- verified with participants after study.	Inhibitors: emotional connection is harder to cope, humanizes patient. Family may see traumatic sights. Enhancers: humanizes patient and important to realize patient is a person. Allows family to see all was done, allows for some closure and support for family. Need facilitator. Need education, family liaison, remodel units for space. Limitations: Unsure of nurses and physician difference.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Demir (2008)	Descriptive. To determine FPDR opinions of physicians and nurses in Turkey. No theory.	Turkey: emergency and critical care units. 79% response rate. $N = 144$. $n = 62$ physicians and $n = 82$ nurses.	Researcher-developed survey: quantitative and qualitative. Chi-square.	82.6% did not think FPDR appropriate: interfere with team (56.3%), traumatic (43.6%), incorrect interpretation of actions (21.8%), not appropriate for culture/educational level of public (15.9%), family might faint taking focus from patient (15.9%), <5% felt lengthen resuscitation time, risk for litigation. Those supportive: families can see effort (76.9%), able to accept situation better (69.2%), right of family (46.1%), increases confidence in physician (15.3%), improves professional behavior (7.6%). 91.6% of respondents had never given FPDR permission. 35.4% had been asked for FPDR. No differences for profession, educational level, or years of experience.
Doyle et al. (1987)	Descriptive, retrospective. To determine staff FPDR feelings and whether their care was hampered by FPDR. No theory.	United States: nonteaching, urban emergency department. Staff $N = 21$ ($n = 3$ physicians, $n = 12$ RNs, $n = 6$ clerks).	Retrospective survey to families and healthcare team.	Staff: 81% in room during FPDR. 30% hampered in their activities due to anxiety or concern over emotional or disruptive behavior, 71% endorsed FPDR. Reported increased stress because patient seemed more human. Limitations: Small sample.
Duran et al. (2007)	Descriptive (Qualitative comments). To describe and compare the family presence beliefs/attitudes of healthcare clinicians, regardless of previous experience. Theory: Family-centered care.	United States: 1 urban hospital: emergency and critical care units. $N = 202$, response rate 18% for providers. $n = 98$ nurses, $n = 98$ physicians, $n = 6$ respiratory therapists.	Adapted Meyers et al. (2004) surveys. Pilot testing done. Cronbach $\alpha = .97$ for providers. Converted summed scores to mean (1-4) family presence attitude score (M-FPAS). X^2, t-tests, and ANOVA.	66% had previous FPDR experience. M-FPAS = 2.59. Significant differences: prior FPDR = 2.7 compared to 2.38 ($p < .001$), between nurses (2.79) and physicians (2.37) with $p < .001$. No significant difference for unit. Majority support FPDR (54%). Favor protocol: 86% of nurses and 46% of physicians. Qualitative responses: fear of family trauma, team interference, performance anxiety, inhibits teaching. Want individualized approach: option, not protocol. Limitations: Survey long: recommend shorter survey for response rate. Lacked ethnic diversity. Need to study other medical-surgical areas.
Fernandez et al. (2009)	Quasi-experimental. To determine whether presence/ behavior of family during FPDR affects resident physician performance. No theory.	United States: Simulation center. Emergency residents ($n = 60$)- randomly assigned to no family, quiet family, overt grief reaction family.	Performed simulated resuscitations on high-fidelity simulator with scripted family member and social worker. Measured differences in time and detection of error.	Only significant difference for overt reaction group- slower in time to first defibrillation and lower number of shocks. Intubation time shorter in both witnessed groups than no witness group. No significant difference for quiet group, suggests facilitator important. Quiet witness group delivered more shocks than no witness. Concern for impact on performance and psychological trauma. Limitations: Unable to do power size calculation due to exploratory.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Holzhauser & Finucane (2008)	Descriptive. To determine staff attitudes immediately following resuscitation, and determine advantages and disadvantages of FPDR. No theory.	Australia: 1 emergency department in large hospital. Total $N = 308$ (intervention $n = 202$, control $n = 106$). RNs 57.4% of intervention, 65.1% of control. Physicians 30.2% of intervention, 27.4% of control. Few social work, pastoral care, students.	Patients randomized to intervention FPDR group or control to waiting room. Surveys in randomization envelope given to staff immediately after event. Surveys developed by researchers, did validity and pilot.	Control- No FPDR advantages: no distractions, interruptions; more relaxed; more space; procedures can upset; family may have trouble with cessation. 26.4% felt there were disadvantages to relatives absent, 56.6% felt no disadvantages. Disadvantages: no history; relatives would have understood better; harmful to family to have to wait. Intervention- FPDR advantages: obtain history quick; patient comforted; family felt included; easier for staff to manage family; family relieved everything done. Disadvantages: family in the way; disrupted resuscitation; staff performance suffered. Limitations: Unable to get true response rate due to fluctuating persons involved- estimate intervention rate 70% and control 63%. Not known how many times each staff member completed a survey. Did not separate results by profession- did state no difference among professions.
Leung & Chow (2012)	Descriptive. To examine FPDR attitudes of staff in critical care units. Theory: Health belief model, reasoned action, and self-efficacy.	Hong Kong: 1 large hospital- 2 critical care units. Convenience: $N = 163$ healthcare staff ($n = 143$ nurses and $n = 20$ physicians).	Adapted survey. Tested for validity and reliability. Pilot tested. t-test and Mann-Whitney.	Staff: 30.6% had prior FPDR. Support for FPDR: none put strongly agree, 12.9% agree, 53.4% objected to FPDR. Disagreed less: 32% with FPDR experience than those without 62.9% (significant). Commonly perceived risks correlates to disagree with FPDR and benefits correlates to agree with FPDR. Significant difference between staff and family. Limitations: 1 hospital. Low physician response rate.
McClenathan et al. (2002)	Quantitative: Descriptive. To determine critical care provider opinions on FPDR, and evaluate reasons for opposing FPDR. No theory.	International Meeting of American College of Chest Physicians Attendees: $N = 554$ ($n = 494$ physicians, $n = 28$ nurses, $n = 21$ other health professionals). Response rate 8-15% of those who attended.	Developed short survey on demographics, profession, region, CPR experience, and opinions on FPDR. χ^2 or Fisher exact test.	No correlation to age, gender, ethnicity, physician area or type, number of years since training, or size/type of hospital. 78% opposed FPDR for adults (80% physicians and 57% nurses = significant). 85% opposed FPDR when patient is child. Northeast less likely and Midwest most likely to support FPDR. No difference between United States and international providers. 343 (59%) had prior FPDR, of this 40% would allow FPDR again. Reasons for opposing: 79% psychological trauma to family, 24% legal concerns, 27% performance anxiety Limitations: Unable to determine response rate.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Meyers et al. (2004)	Prospective, descriptive with qualitative responses. To determine family presence attitudes and experiences, perceived benefits and problems. Theory: Holistic framework.	United States: 1 emergency department of large hospital. Convenience sample: provider $N = 96$, a 79.3% response rate ($n = 60$ RNs, $n = 22$ residents, $n = 14$ attending physicians) after 43 cases (24 emergency procedures and 19 CPR).	Developed family presence attitude scale- 33 items adapted for providers (1-4 with 1 better attitude). Cronbach $\alpha = .91$. Fisher's exact or chi-square test, t-test or ANOVA for attitude scores. Survey within 72 hours of event.	Reported CPR/invasive procedure data together. Mean attitude score 1.91, nurses significantly higher (1.69) than attending physicians (2.06) and residents (2.41). 76% support FPDR, 88% said program should continue. 80% important to families, 78% helped meet family needs, 73% helped meet patient needs, 89% assisted to understand patient condition, 93% team did its best, 64% encouraged professional behavior. 38% concerned family interruption, but did not occur. 97% family behavior appropriate. 85% comfortable with FPDR. 84% felt performance and 97% felt outcome would have been the same. 57% felt family might misinterpret. 29% worried for litigation. 15% felt CPR extended too long. Qualitative: To know all efforts were made, decreased uncertainty and worry, increased peace of mind, increased knowledge lowers lawsuit risk, conveyed sense of personhood increasing attention to dignity. Gave opportunity to educate and empower family, opportunity for closure. Fear overcrowding/distraction- need to focus on patient. Screening and dedicated facilitator. Limitations: Attending physicians could refuse family presence and only those who allowed it to occur were surveyed. Returned survey 2 weeks after, possible contamination.
Ong et al. (2007)	Descriptive. To compare FPDR attitudes of the public (visiting family members) to staff. No theory.	Singapore: emergency department. Convenience sample: visiting family members compared to prior data from staff ($n = 132$ doctors and nurses).	Used 17 question tool modified from step 1 of study interviewing medical staff. Differences in 2 groups analyzed with chi-square or Fisher's exact test.	Support FPDR: 73.1% of families and 10.6% of staff. Would help grieving: 68.8% of families and 35.6% of staff. Staff concerned for traumatic experience and stress to team. Limitations: Convenience sample. Compared to other study.
Redley & Hood (1996)	Descriptive. To identify staff attitudes/concerns about FPDR. Theory: Hampe's grieving needs.	Australia: 6 major hospital emergency departments. Convenience sample: Response rate 83%: $N = 133$ (74% nurses and 26% physicians).	Questionnaire distributed (no details).	62% would consider FPDR under controlled circumstances, 14% felt FPDR should always be offered, 11% felt it should never be offered, 9% felt decision should be made by medical person in charge. 70% would want FPDR if it were their relative. 70% nurses and 48% physicians had been asked for FPDR by family. 68% had experience with FPDR. Concerns: 76% procedures would offend, 61% emotional stress, 48% family would disrupt, 33% staff may offend family, 29% public not equipped to handle, 18% legal concern. Limitations: No survey details.

Nurse-Focused Studies

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Axelsson et al. (2010)	Descriptive. To investigate European cardiovascular nurses' FPDR experiences and attitudes, and determine differences based upon country, experience, role, and environment. No theory.	Europe: Convenience sample: survey distributed at 3 national and 1 international cardiovascular conferences. 50% response rate ($N = 411$).	Fulbrook et al. (2005) survey. Mann-Whitney U test, Kruskal-Wallis test.	43% with FPDR experience, 13% invited, 22% were asked. 7% unit protocol. Most common in Ireland and United Kingdom, less common in Sweden and Norway. No difference for unit. Correlation to poor attitude: less experience, clinical practice versus other. 54% against always FPDR. Benefits: 71% see all done, 50% spend final moments, 50% helps grieving, 52% realistic view. Risks: 47% family will argue, 52% confidentiality, 47% family interference, 37% family distressed, 52% poor concentration, 41% negative performance, 48% prolong CPR, 19% litigation. 90% need dedicated support person. 58% not enough staff. 59% space too small. Limitations: Most of sample from Norway. Low response rate.
Badir & Sepit (2007)	Descriptive. To determine FPDR experiences/ opinions of Turkish critical care nurses. No theory.	Turkey: 4 hospitals (another 2 refused to participate). Response rate 68%, $N = 278$ critical care nurses.	Fulbrook et al. (2005) survey. Pilot tested. Descriptive statistics.	No FPDR policy. 63.7% no experience and none invited. 83.1% did not feel need to invite. 69.1% did not want FPDR. Risks: 88.1% confidentiality, 88.5% family to argue, 87.8% family stress, 78.8% not beneficial to patient, 84.2% staff stress, 64.7% interference, 71.5% not enough staff, 88.5% long term emotional effects, 54.7% prolong CPR. Low support for benefits. Limitations: one unit type.
Ellison (2003)	Descriptive, correlational with Qualitative. To explore variables influencing family presence attitudes/beliefs and identify relationships. Theory: Ajzen and Fishbein's-Reasoned Action.	United States: 1 hospital (59%) and New Jersey ENA members (41%). $N = 208$, response rate 42%. Multiple units and roles.	ENA survey. Cronbach α for the 2 sections = .47 and .68. Pearson correlations and multiple regression.	Prior FPDR course: 4%. Correlation to positive attitude: education, certification, degree, unit. 31.3% would allow. Barriers: environment limits, time demand, lack of personnel, family unable to understand, interference, cultural differences, being observed, fear of litigation, tradition. Benefits: advocate for patient, provide support, facilitate grieving, stop prolonged futile attempts, give comfort, opportunity to say good bye, sense of closure. Limitations: Not diverse sample.
Fallis et al. (2008)	Descriptive. To identify FPDR practices/ preferences of Canadian critical care nurses and to compare to United States. To identify policy and position statement awareness. No theory.	Canada: Convenience sample to Canadian Association of Critical Care Nurses members. Online survey sent to 944. Response rate 47.7% ($N = 450$).	Online survey with Survey Monkey. Altered MacLean et al. (2003) survey- FPDR only. Pilot tested. Descriptive percentages and Fisher's exact tests. Qualitative data reported separately.	92% supported FPDR option (United States 76%). In last year 18.5% asked by family (United States 31%), 32.5% had taken family to bedside and 32.5% would do if opportunity (United States 57%). 8% written policy/guideline at hospital (United States 5%). 49.8% aware of position statement. No significant difference based on age, education, experience. More supportive if knowledge of position statement and previous FPDR experience. Limitations: Low response rate.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Fulbrook et al. (2005)	Descriptive. To determine European critical care nurses FPDR experiences and attitudes. No theory.	Europe: surveys to nurses at European Federation of Critical Care Nursing Associations conference. $N = 124$ (response rate 55.4%).	Created survey: 3 components were decision-making, process, and outcomes of CPR. Used 5-point Likert scale. No data on validity or reliability. t-test, Mann-Whitney, Spearman's Rank Order.	46.8% had FPDR experience, 20.7% invited, 28.2% asked by families. 53.4% positive FPDR experience. 5.7% FPDR unit protocol. No attitude difference based on unit or years experience. Difference between United Kingdom and other, clinical and non-clinical. 46.8% did not agree families should be offered. 45.5% did not want. 78.2% felt doctors do not want. 46.7% agreed FPDR should not be normal practice. 36.9% not beneficial to patient. 80.6% need dedicated person for family, 52.8% staffing inadequate and 55.6% space too small. Risks: 62.9% confidentiality, 30.6% family argues, 47.6% poor concentration, 12.2% family interference, 27% poor performance, 75% team may say upsetting things, 26% litigation, 38.7% prolong CPR, 20.2% long-term effects. Benefits: 52.8% more likely for care withdrawal, 76.4% know all was done, 57.3% share last moments, 50.8% assist grieving process. Limitations: Survey not validated or pilot tested.
Ganz & Yoffe (2012)	Descriptive, Correlational. To determine Israeli nurses' attitudes towards family-centered care and FPDR. Theory: Family-centered care.	Israel: 3 critical care units at 2 large hospitals. Convenience sample $N = 93$ (83% response rate).	5 questionnaires: 1 demographic, 2 on family-centered care by Downey et al. (2006), and 2 by Fulbrook et al. (2005) on FPDR experiences/ attitudes. Cronbach $\alpha > .80$. Descriptive statistics, Pearson correlations.	28% perform family-centered care at high level (mean >4). Better providing information than emotional support. FPDR: 20% had experience, none invited. 18.3% had negative experience. 88.2% objected to always offering, 81.4% FPDR unacceptable, 69.9% felt nurses do not want FPDR. Risks: family distress, family interference 82.5%, cannot concentrate 75.3%. Benefit: 46.3% family could see all done. No relationship between level of family-centered care and FPDR. Correlation between family-centered care barriers and FPDR attitudes. Barrier: lack of staff. No relationship between demographics or work characteristics, except age correlated with FPDR support. Limitations: Many statistical techniques may have increased type I error.
Güneş & Zaybak (2009)	Descriptive. To determine FPDR experiences/ attitudes of Turkish nurses. No theory.	Turkey: critical care and emergency units at 2 hospitals. 53% response rate ($N = 135$).	Fulbrook et al. (2005) survey. Cronbach $\alpha = .97$ and .91 for 2 sections. Descriptive statistics.	22.2% FPDR experience, 66.7% had negative experience. 94.8% never invited FPDR. None had FPDR protocol. 88.1% disagreed family should always be offered. 91.1% nurses do not want FPDR. Risks: 88.1% confidentiality, 72.6% family to argue, 76.3% family interference, 91.1% cannot concentrate, 64.5% poor performance, 92.6% not enough staff, 72.6% not beneficial to patient, 92.6% long-term effects, 90.4% increased litigation. Benefits: 74.1% see everything done. Limitations: Response rate.

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Knott & Kee (2005)	Qualitative. To explore FPDR beliefs/ experiences. No theory.	United States: did not state if in same hospital. Experienced nurses ($N = 10$) in adult/pediatric acute care settings.	Open-ended interview questions.	Assess situations individually and have dedicated staff. Risks/barriers: family interference, family emotions, need to care for patient first, poor family knowledge, pediatric patients better for FPDR, family trauma, staff anxiety and distraction, staff not professional. Benefits: family stopping futile care, understanding situation, encourage professional behavior, provide closure, know everything done, facilitates grieving. Limitations: Unknown diversity.
Köberich et al. (2010)	Descriptive (Qualitative responses). To explore German critical care nurses' experiences/ attitudes towards FPDR. No theory.	Germany: critical care nurses attending conference. Convenience sample $N = 166$ (42.1%).	Fulbrook et al. (2005) survey. Descriptive statistics.	42.2% FPDR experience, 65.7% negative. 10.2% asked by family. 6% FPDR policy. 67.5% did not agree should have option. Risks: 62.7% family argues, 69.9% confidentiality, 79.5% interference, 33.1% distraction, 63.2% family distress, 43.3% litigation, 54.2% prolong CPR. Benefits: 34.3% more likely to withdraw care, 60.8% better understanding. 73.5% need dedicated staff, 50.6% staffing too low, 54.9% areas too small. Qualitative: individualize, assess patient preference. Limitations: Not entire country.
Lowry (2012)	Qualitative. To describe perceptions of FPDR benefits and harm from nurses in emergency department with a policy for 20 years. No theory.	United States: 1 emergency department: Foote Hospital-Doyle et al (1987) site. Emergency department nurses ($N = 14$).	Face-to-face interviews with researcher-developed open-ended tool.	Accepted practice: "we have somebody watching for them…meeting them", "just part of looking at the whole person and treating the family", "you still do the same things" (p. 331). Benefits: family comforts patient, provide information, improved understanding, see effort. Harm: No harm to family or legal events, have discomfort being watched, family not understanding, legal risk, traumatic visions. Protocol: nurse role, importance of chaplain support, explain before entering, wait until after some procedures. All favorable of FPDR. Limitations: 1 setting.
MacLean et al. (2003)	Descriptive (qualitative comments). To identify family presence policies, preferences, and practices of emergency and critical care nurses. No theory.	United States: National survey of ENA and AACN members. $N = 984$ (33% response rate): $n = 456$ emergency, $n = 473$ critical care, $n = 55$ unspecified. Represented all 50 states.	Developed 30 item survey- pilot tested on 113 nurses. Mailed survey to random sample of 1500 AACN and 1500 ENA members. χ^2 used with significance set at $p < .01$.	5% with written policy. 45% allowed FPDR without policy. 37% preferred policy, 39% favor FPDR but do not want policy. 36% FPDR in preceding year, mean 3 times. 21% without FPDR but would do so if opportunity. Significantly higher amount who preferred policy were allowing FPDR. 31% asked by families a mean 3 times in preceding year. Benefits: emotional support, increase understanding, helps families make decisions, know all was done, facilitates closure and healing. Need to assess each situation, have facilitator. Concerns: privacy, family emotions, staff stress, impede care, limited space, legal issues. Limitations: No reliability testing. Low response rate.

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Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Madden & Condon (2007)	Descriptive. To examine nurses' FPDR practices and knowledge in Ireland. Theory: Family-centered care.	Ireland: 1 large emergency department. N = 90 (response rate 90%).	ENA survey.	58.9% FPDR in past year (mean 2.64 times), 17.8% without opportunity but would do it. 74% prefer policy. Barriers: 58% team conflict, 50% increased stress, 39% litigation, 27% interference. FPDR facilitators: 96.6% greater understanding of benefits (need for education). 94.4% all team members need to be in agreement. Limitations: 1 setting and unit.
McClement et al. (2009)	Qualitative. To determine Canadian critical care nurses' experiences with FPDR. Part of separate quantitative study. Theory: Hampe (1975).	Canada: Convenience sample of Canadian Association of Critical Care Nurses members: n = 252 (66% of 450 in quantitative study) provided qualitative comment.	Online survey: given option to provide qualitative responses. Asked "Is there anything you would like to share with us about family presence during resuscitation related to your unit, or on a professional or personal note?"	Family Benefit: demystifies/shows efforts, decreases doubt. Comforts both. Say goodbye. Strangers unable to love dying patient like family. Family Risk: psychological trauma. Need designated support person- prepare, assess, remove. Harm- during defibrillation. Provider Benefit: see patient as person. Family to discontinue. Better understand. Provider Risk: feel inadequacy, anxiety- increases resistance. Need confidence before FPDR. Liability. Constraint on usual coping; humor may be misunderstood. Distraction. Limitations: One question, not clarified.
Miller & Stiles (2009)	Qualitative. To explore lived experiences of nurses who partake in family presence. No theory.	United States: multiple hospitals and recruited through ENA and AACN. Pediatric and adult RNs. N = 17- multiple units/roles. All with family presence experience within past 8 months.	Semi-structured interviews.	Benefits: bond with family, make a difference, realistic picture, accepting and grieving, say goodbye, respectful care, better for patient- not alone, information, stop futile care, positive experience for RN evolves with repeated FPDR. Risks: emotionally draining, psychological trauma, staff anxiety, family interference, liability, inappropriate comments, distract. Described barriers overcame, no negative experiences, adaptation to change over time. Cautious: screen family, no invasive measures. Limitations: Poor diversity.
Twibell et al. (2008)	Descriptive, Correlational. To test 2 instruments to measure nurses' perceptions of FPDR risks and benefits and self-confidence. To explore relationships and examine differences in those with FPDR experience. Theory: Rogers' theory of diffusion of innovation and Bandura's theory of self-efficacy.	United States: 1 hospital in Midwest without a FPDR policy. N = 375 from multiple units (response rate 64%). 80% solely cared for adult patients.	Created and tested FPR-BS and FPS-CS. Expert content review. Pilot tested with N = 20. Multiple measures for validity and reliability. FPR-BS Cronbach α = .96 and FPS-CS Cronbach α = .95. First to assess self-confidence. Pearson r correlations.	2/3 never invited FPDR, >20% invited it 1-4 times, 7.5% invited it 5+ times. Mean FPR-BS 3.15, FPS-CS 3.65: most items elicited from strongly disagree to strongly agree. Correlation: higher perceived benefits increases confidence. If agreed/ strongly agreed FPDR was patient/family right, perceived fewer risks and higher confidence. Certification/organization membership affected scores. No difference for degree, years experience, age. No difference critical or non-critical care, most accepting in emergency department and lowest in outpatient- May correlate to CPR frequency. Difference with prior FPDR experience: more invited it the more perceived benefits (2.99 to 3.38 to 4.00), higher confidence (3.47 to 3.93 to 4.43). Divergent responses show continued controversy. Limitations: Not diverse.

Intervention-Focused Studies

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Bassler (1999)	Quasi-experimental (1 group pre- and post-test): To examine impact of classroom education on nurses' FPDR beliefs. Theory: Worden (1991) Conceptual Model for 4 Tasks of Mourning.	United States: 1 large northeast hospital: critical care and emergency department. Convenience sample: $N = 46$ ($n = 14$ critical care, $n = 22$ emergency department, $n = 10$ unspecified).	Researcher developed and conducted education; repeated 17 times over a month. Education: obstacles, law and hospital policy, risk management, implementation. Testing immediately before and at end of class. McNemar.	Correlations: Emergency department RNs (73%) more likely to have FPDR than critical care (36%). No correlation to age/degree. Education: Give choice: 55.6% pretest, 88.9% posttest ($p < .0005$). Currently give option: pretest 10.9%, will give option: posttest 79.1% ($p < .0005$). Qualitative comments: Pre-test opposition: family reactions, privacy, not supportive staff, small room, losing focus on patient. Pre-test support: family right. Post-test opposition: fear to view poor practice, lack of staff. Post-test support: family needs, assist grieving, allow if support person/policy/team agreement, evaluate cases individually. Limitations: Not diverse. Non-randomized- high census made difficult to get subjects, class repeated.
Dougal et al. (2011)	Quasi-experimental (1 group pre- and post-test): To describe hospital experience of researching, creating, implementing, and evaluating a family presence policy. To understand feelings/attitudes of team. Theory: Iowa Model.	United States: Northwest emergency department. Survey 1: 34% response rate ($n = 84$). Survey 2: 38% response rate ($n = 88$). Various profession size too small to compare (RN, physician, social work, respiratory therapy, chaplain, technician, and guest relations).	Created policy and conducted education prior to implementation. Content: roles, definitions, policy. PowerPoint, visual reminders on boards. Duran et al. (2007) survey-2 times, 10 months apart.	Survey 1: large standard deviations showed lack of consensus. Combining FPDR and invasive procedures caused confusion. Separated in survey 2- Cronbach α went from .86 to .93. Higher support for FPDR than for invasive procedures. Reported results for survey 2 only. 66.7% felt FPDR was acceptable. Limitations: Appeared to implement policy & FPDR prior to survey. Surveys implemented twice- unsure if they reflect pre- and post-policy or education. Sample may have differed. Did not determine changes following program implementation- instead discussed need to separate FPDR and invasive procedures and operationalize 2 separately.
Feagan & Fisher (2011)	Descriptive, quasi-experimental (1 group pre- and post-test). Phase 1: To evaluate local trends in nurse/physician FPDR attitudes to develop education. Phase 2: To test effect of education on FPDR acceptance. Theory: Lewin's Change Theory.	United States: 1: 2 hospitals- all units. $n = 113$ RNs (response rate 24%), $n = 27$ physicians (response rate 49%). 2: 1 hospital post-education. 83 at education, 44 pretests added to Phase 1 (total 94 pretests). Posttest returned by 25 of 83 RNs (response rate 30%).	Survey 1: Spearman's rho, t-tests- compare support between roles. Phase 2: Posttests t-test and ANOVA- pre- and posttest means. Used ENA PowerPoint, 40 minute session repeated over 2 months. Altered ENA survey. Cronbach $\alpha = .88$.	Before education ($n = 85$ RNs, $n = 9$ physicians), after ($n = 25$ RNs). RNs multiple units. Phase 1: FPDR as option correlated most strongly with prior FPDR experience. FPDR as patient/family right correlated with CPR and FPDR experience. 23% of RNs had prior FPDR education- significantly more likely to support FPDR. Phase 2: Significant difference from pre- to posttest on 6 of 8 questions. Limitations: Bias of maturation- phase 1 pretest 6 months before education. Some pretests from phase 1 and phase 2. Unsure if same subjects did pre- and post-test- large difference in number. No data collected on ethnicity.

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Holzhauser & Finucane (2007)	Quasi-experimental (1 group pre- and post-test): To determine staff attitudes towards FPDR before/after implementation of FPDR program. No theory.	Australia: 1 large hospital emergency department. Non-probability sampling of all staff (nurses, physicians, social work, and pastoral care). Pretest: $n = 63$ (response rate 51.2%), posttest $n = 36$ (response rate 31	Part of randomized controlled trial. Staff surveyed prior to program, 6 months after start. Developed survey. Pilot tested, no reliability given. Chi-square, Kruskal-Wallis. Conducted education prior and at intervals during implementation: peer support, dealing with grieving family, debriefing.	Comfort working with grieving relatives increased 2.79 to 3.14 ($p = .011$). FPDR should be allowed 2.73 to 3.29 (p=.286). Unsure why significance difference with 2 comparable mean scores. Risks: increased stress, performance impaired, legal risk, confidentiality, family unable to cope. Benefits: assists with grieving, close to relative when dying. Pretest: 35% had been asked by family for FPDR. Those who refused stated family paced outside of room, became more agitated/angry. Those who allowed stated no problems, positive experience, benefitted patient, and calmed relative. Limitations: Did not differentiate changes due to education or FPDR implementation. Posttest surveyed those without FPDR experiences.
Kantrowitz-Gordon et al. (2012)	Quasi-experimental (1 group pre- and post-test): To test effectiveness of education on nursing students' knowledge, perceptions, and confidence for FPDR. Theory: Jeffries & Rogers' Nursing Simulation Framework. Bandura's Social Learning Theory.	United States: 5 universities in northwest (2 states). Single group of nursing students ($N = 275$).	Developed toolkit, implemented in small groups. Twibell et al. (2008) FPR-BS and FPS-CS, and developed knowledge scale-similar to FPR-BS. No pilot, validity/reliability reported. Data collected pre- and immediately post-education. Paired t-tests, chi-square.	Education (toolkit) increased knowledge, perceptions, and self-confidence for FPDR ($p < .001$). Effect size was large for knowledge ($d = .90$) and perceptions ($d = 1.04$) and moderate for confidence ($d = .51$). Mean knowledge scores went from 7.1 to 9.0, perception from 3.48 to 3.95, and confidence from 3.42 to 3.65. Provided access to toolkit and video simulations online. Limitations: Unable to predict long-term change. Knowledge tool without validity or reliability assessment. Faculty and nurse mentors may degrade these results if not supportive. Students may have been eager to please faculty.
Mian et al. (2007)	Descriptive and Quasi-experimental (1 group pre- and post-test): To design and implement a family presence program, and evaluate attitudes of staff before and after implementation of program, and compare difference between nurses and physicians. No theory.	United States: 1 large urban northeast hospital emergency department. Survey 1: $n = 86$ nurses (81% response rate), $n = 35$ physicians (50% response rate) before education program start. Survey 2: $n = 89$ nurses (80% response rate) and $n = 14$ physicians (23% response rate).	Surveys 17 months apart. Survey 2 at 1 year after program start. Program/policy based on ENA. Role-playing, support/feedback, video, script. Education separate over 3 months. Created survey-Expert review, pilot testing. Cronbach α for each subscale from .535 to .900.	Nurses supported family presence more than physicians, and both supported FPDR more than with invasive procedures. Risks: resident education hampered, increased anxiety, confidentiality, legal risks, family distress. Support for FPDR: nurses 57% to 70% and physicians 40% to 35%. Only 1 physician on follow-up survey had attended education. Limitations: Unable to determine if changes due to education or program implementation. May have been different respondents, though demographic data similar on 2 surveys. Education of professions done separately, by separate persons, and in different manner. Physician follow up survey with small number and only 1 reported attendance at education.

Author (Year)	Design, Purpose, and Theory	Setting and Sample	Data Collection	Significant Findings and Limitations
Norton et al. (2007)	Quasi-experimental (1 group pre- and post-test): To test the effect of education on nursing students' opinions/beliefs about family presence.	United States: BSN students at university ($N = 100$).	1-hour class on family presence (ethics, evidence). Adapted tool from Helmer et al. (2008)- yes/no items- immediately before/after class. No statistics information given.	Family presence (amount of subjects who answered yes): risk of legal issues 46 to 13, interferes with care 59 to 18, poor psychological effect on family 72 to 16, should have policy on units 88 to 100. Limitations: No statistics discussed. Sample not described. Scale for trauma resuscitations, no validity/reliability given.
Nykiel et al. (2011)	Descriptive, Quasi-experimental (1 group pre- and post-test)- with qualitative responses: To survey staff about family presence beliefs and perceptions before/after implementation of a facilitated family presence program. No theory.	United States: 1 large hospital emergency department. Survey 1: response rate 27.8%. Survey 2: response rate 22.6%. Majority of respondents in both were nurses.	Created protocol. Survey given to all staff (physicians, nurses, respiratory care, radiology, social work, chaplains, security, and registration) at baseline and 6 months after. After pretest, 2 months of inservices on protocol (rationale, history, implementation). ENA survey. t-tests.	44% with prior family presence experience before implementation, 51% after. FPDR: pre: 2.97 to post 2.38 ($p < .01$); support for FPDR went from 82% to 87% after program implementation. No instances of family interference. Risks: family interference, prolonged code, impaired performance, family well-being, lack of space, increased stress. Support: need to educate family, need to be present at death, provides reassurance and closure, helps to know all was done, provides closure and support, increases understanding. Limitations: Survey 1 in April and survey 2 in September after new class of residents started. Did not describe differences for profession. Survey 2 not restricted to staff who participated in original survey. Low response rates.
Pye et al. (2010).	Quasi-experimental (1 group pre- and post-test): To provide hands-on training for FPDR and evaluate effect of simulation on pediatric ICU nurses' comfort for FPDR. No theory.	United States: 1 pediatric critical care in South. Nurses ($N = 64$).	Simulation training with standardized actors. Developed instrument to address self-reported comfort level using Likert scale. Content validity, but no reliability. Did not disclose scale contents, items. Used scale at pre-, immediately post-, and at 1 year after the simulation training. χ^2.	"They became more comfortable with parental presence during pediatric resuscitation" (p. 173) from pre- to post-testing: $p < .005$. "They became more comfortable communicating with parents in crisis" (p. 173) from pre- to post-testing: $p = .001$. Statistical significance for each item tested from pre- to post-testing and at 1 year after. Did not report specific data results. Limitations: No report of sample demographics, response rate. No information on scale items. Only reported results of 2 items on scale, unsure of other scale items. No reliability of scale reported. Unsure if results from 1 year post-training were due to education or implementation of FPDR.

Kelly Powers <powers19@unlv.nevada.edu>

E-Newsletter Study Advertisement

Linda Bell <linda.bell@aacn.org>   Mon, Aug 12, 2013 at 7:32 PM

To: Kelly Powers <powers19@unlv.nevada.edu>

Hi Kelly – this all looks good so go ahead and do your IRB submission. Don't forget to ask about the use of social media as well.

From: Kelly Powers [mailto:powers19@unlv.nevada.edu]
Sent: Monday, August 05, 2013 3:23 PM
To: linda.bell@aacn.org
Subject: E-Newsletter Study Advertisement

Dear Ms. Bell,

I am writing to you in follow up to our conversation a week ago. I am interested in advertising my doctoral dissertation research study on the AACN e-Newsletter. I am emailing you the requested documents for your review: Study Abstract, Copy of Surveys, Permission for Survey Use, and the Educational Materials of the Study. There are 3 surveys that are all included on the one attached document- the first listed is the demographic data sheet which I created and the following other two are scales by Dr. Twibell, in which I have permission to utilize and will do so uneditted. The educational materials are attached in PowerPoint form so you can see the content, but will be going up on an online site shortly and will not all remain in the PowerPoint format, but will be more interactive.

 I will be applying for IRB approval after I hear back from you because our University IRB requires details on advertising and I want to be able to say that I will utilize your e-Newsletter before I submit everything to them! I realize that advertising will not begin until IRB approval has been obtained and submitted to you as well.

 I look forward to hearing back from you. Please do contact me if you require anything further: Phone 201-669-2400 or Email powers19@unlv.nevada.edu

 Thank you for speaking with me last week and clarifying my many questions, Kelly Powers
--
Kelly A. Powers, MSN, RN

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

Biomedical IRB – Exempt Review
Deemed Exempt

DATE: February 13, 2014

TO: **Dr. Lori Candela**, School of Nursing

FROM: Office of Research Integrity – Human Subjects

RE: Notification of IRB Action
           **Protocol Title: Family Presence during Resuscitation of Adults: The Impact of an
           Online Learning Module on Critical Care Nurses' Perception and Self-Confidence
           Protocol # 1401-4694M**

This memorandum is notification that the project referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46 and deemed exempt under 45 CFR 46.101(b)2.

PLEASE NOTE:
Upon Approval, the research team is responsible for conducting the research as stated in the exempt application reviewed by the ORI – HS and/or the IRB which shall include using the most recently submitted Informed Consent/Assent Forms (Information Sheet) and recruitment materials. The official versions of these forms are indicated by footer which contains the date exempted.

Any changes to the application may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**. When the above-referenced project has been completed, please submit a **Continuing Review/Progress Completion report** to notify ORI – HS of its closure.

If you have questions or require any assistance, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 895-2794.

Office of Research Integrity – Human Subjects
4505 Maryland Parkway · Box 451047 · Las Vegas, Nevada 89154-1047
(702) 895-2794 · FAX: (702) 895-0805

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Institutional Review Board (IRB) for Research with Human Subjects

Approval of Exemption

Protocol #	**14-03-02**
Title:	**Family Presence during Resuscitation of Adults: The Impact of an Online Learning Module on Critical Care Nurses' Perception and Self-Confidence**
Date:	**3/5/2014**
Investigator	**Dr.** **Lori** **Candela** **University of Nevada Las Vegas**
Co-investigator	**Ms.** **Kelly** **Powers** **School of Nursing**

The Institutional Review Board (IRB) certifies that the protocol listed above is exempt under category 2 (45 CFR 46.101).

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and

b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

This approval will expire one year from the date of this letter. In order to continue conducting research under this protocol after one year, the "Annual Protocol Renewal Form" must be submitted to the IRB. Please note that it is the investigator's responsibility to promptly inform the committee of any changes in the proposed research, as well as any unanticipated problems that may arise involving risks to subjects. Amendment and Event Reporting forms are available on our web site: http://research.uncc.edu/compliance-ethics/human-subjects/amending-your-protocol or http://research.uncc.edu/compliance-ethics/human-subjects/reporting-adverse-events

Dr. M. Lyn Exum, IRB Chair   3/10/14   Date

Kelly Powers <powers19@unlv.nevada.edu>

Family Presence Instrument Request

Twibell, Kathryn <RTWIBELL@bsu.edu>   Wed, Jun 5, 2013 at 12:55 AM

To: Kelly Powers <powers19@unlv.nevada.edu>

Kelly,

Thank you for your message. I am happy you are focusing your dissertation on family presence during resuscitation. You have permission to use the tools Family Presence Risk-Benefit Scale and the Family Presence Self-confidence Scale.

Attached is the complete version of the tool we used. The Risk-Benefit Scale consists of items 1-26. As reported in the article, three risk-benefit items (on the first page of the tool) were deleted due to the way they functioned on the factor analysis. You could include them in your study and see how they do for you. The items came out of our qualitative work and we believed they were important, but they did not work consistently with the other items.

Items 27-43 compose the self-confidence scale.

The items from 44 to the end were other items we did not report on in the AJCC article. Feel free to use them as you wish.

One suggestion I would make is to ask the respondents what experience they have had with CPR and family presence. That is one item I wish we would have included.

I wish you well in your endeavor. If I can be of any further assistance, please feel free to email any time.

Renee Twibell, PhD, RN, CNE
Associate Professor, School of Nursing
Ball State University
Nurse Researcher, Ball Memorial Hospital
Muncie, IN 47304
rtwibell@bsu.edu

From: Kelly Powers [powers19@unlv.nevada.edu]
Sent: Monday, June 03, 2013 4:42 PM
To: Twibell, Kathryn
Subject: Family Presence Instrument Request

Dear Dr. Twibell,
 I am a PhD in Nursing student at the University of Nevada, Las Vegas. I am preparing for my dissertation research that will focus on the impact of computer-based learning on nurses' perception and self-confidence for family presence during resuscitation. I would like to utilize the two scales that you developed and tested: the Family Presence Risk-Benefit Scale (FPR-BS) and the Family Presence Self-confidence Scale (FPS-CS). May I have your permission to utilize these two scales in my dissertation research? I thank you in advance for your consideration and look forward to hearing back from you.

 Sincerely,

 Kelly A. Powers

APPENDIX E: MEASUREMENT SCALES

Student Investigator-Developed Demographic and Professional Attribute Form

The following are demographic and professional attribute questions.

For each question, please select the answer option that **<u>BEST</u>** describes you:

1. What is your age?
   - ☐ 18-24 years old
   - ☐ 25-34 years old
   - ☐ 35-44 years old
   - ☐ 45-54 years old
   - ☐ 55-64 years old
   - ☐ 65 years and older

2. What is your ethnicity? (You can select more than one option)
   - ☐ Caucasian
   - ☐ African American
   - ☐ Hispanic
   - ☐ Asian
   - ☐ Native American
   - ☐ Other: _____

3. What is your gender?
   - ☐ Male
   - ☐ Female

4. How would you describe yourself in terms of spirituality?
   - ☐ I consider myself to be spiritual or religious.
   - ☐ I do not consider myself to be spiritual or religious.

5. What is the highest nursing degree that you have completed?
   - ☐ Associate Degree in Nursing
   - ☐ Baccalaureate Degree in Nursing
   - ☐ Master's Degree in Nursing
   - ☐ Doctoral Degree in Nursing

6. How many years of experience do you have as a nurse?
   - ☐ Less than 1 year
   - ☐ 1 to 5 years
   - ☐ 6 to 10 years
   - ☐ 11 to 15 years
   - ☐ 16 to 20 years
   - ☐ More than 20 years

7. Which of the following best describes your current job?
   - ☐ Bedside RN
   - ☐ Nursing Research
   - ☐ Nursing Management
   - ☐ Nursing Education
   - ☐ Other: _____

8. What type of unit do you most often work on?
   - ☐ Critical Care or Intensive Care Unit
   - ☐ Progressive Care Unit
   - ☐ Emergency Department
   - ☐ Non-Critical Care Inpatient Unit
   - ☐ Outpatient Unit
   - ☐ Other: _____

9. What patient population do you care for?
   - ☐ Adult
   - ☐ Pediatric
   - ☐ Adult and Pediatric
   - ☐ Neonatal

10. Do you have a specialty certification?
   - ☐ Yes
   - ☐ No

11. If you are specialty certified, what type of certification do you have? (You can select more than one option)
   - ☐ Certified Critical Care Nurse (CCRN)
   - ☐ Progressive Care Certified Nurse (PCCN)
   - ☐ Certified Emergency Nurse (CEN)
   - ☐ Certified Medical-Surgical RN (CMSRN)
   - ☐ Other: _____

12. Are you a member of a professional nursing organization?
   - ☐ Yes
   - ☐ No

13. If you are a member of a professional organization, which organization do you belong to? (You can select more than one option)
   - ☐ American Association of Critical Care Nurses (AACN)
   - ☐ Emergency Nurses Association (ENA)
   - ☐ American Nurses Association (ANA)
   - ☐ Other: _____

14. Are you currently Advanced Cardiac Life Support (ACLS) certified?
  - ☐ Yes
  - ☐ No

15. Have you ever participated on a "Code Blue" or "Rapid Response" team?
  - ☐ Yes
  - ☐ No

16. How many times <u>in your entire nursing career</u> have you experienced events that required cardiopulmonary resuscitation (CPR) or a cardiac arrest code?
  - ☐ Never
  - ☐ 1 to 5 times
  - ☐ 6 to 10 times
  - ☐ 11 to 20 times
  - ☐ More than 20 times

17. How many times <u>in the past year</u> have you experienced events that required cardiopulmonary resuscitation (CPR) or a cardiac arrest code?
  - ☐ Never
  - ☐ 1 to 5 times
  - ☐ 6 to 10 times
  - ☐ 11 to 20 times
  - ☐ More than 20 times

18. How many times <u>in your entire nursing career</u> have you experienced having family member(s) present in the room during cardiopulmonary resuscitation (CPR) or a cardiac arrest code?
  - ☐ Never
  - ☐ 1 to 5 times
  - ☐ 6 to 10 times
  - ☐ 11 to 20 times
  - ☐ More than 20 times

19. How many times <u>in the past year</u> have you experienced having family member(s) present in the room during cardiopulmonary resuscitation (CPR) or a cardiac arrest code?
  - ☐ Never
  - ☐ 1 to 5 times
  - ☐ 6 to 10 times
  - ☐ 11 to 20 times
  - ☐ More than 20 times

20. How many times <u>in your entire nursing career</u> have you initiated family presence during resuscitation (asking family members to come into the room during a cardiac arrest code)?
- ☐ Never
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 20 times
- ☐ More than 20 times

21. How many times <u>in the past year</u> have you initiated family presence during resuscitation (asking family members to come into the room during a cardiac arrest code)?
- ☐ Never
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 20 times
- ☐ More than 20 times

22. How many times <u>in your entire nursing career</u> have family members asked you if they could come into the room during a cardiac arrest code being performed on their loved one?
- ☐ Never
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 20 times
- ☐ More than 20 times

23. How many times <u>in the past year</u> have family members asked you if they could come into the room during a cardiac arrest code being performed on their loved one?
- ☐ Never
- ☐ 1 to 5 times
- ☐ 6 to 10 times
- ☐ 11 to 20 times
- ☐ More than 20 times

24. Does your facility or unit have a written policy on family presence during resuscitation?
- ☐ Yes
- ☐ No
- ☐ Unsure

25. Have you ever attended a class or received education about family presence during resuscitation?
- ☐ Yes
- ☐ No

Family Presence Risk-Benefit Scale (FPR-BS)

The following statements refer to family presence during resuscitation.

Important Definitions:

Family: Family is defined by the patient and includes the persons, related or not, who provide support and have a significant relationship with the patient.

Resuscitation: The care that is provided in an attempt to sustain the life of the patient.

Family Presence during Resuscitation: The attendance of family member(s) within the patient care area during implementation of resuscitation measures. Includes facilitation of visual and/or physical contact with the patient.

Please indicate the option that **BEST** represents your opinion:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Family members should be given the option to be present when a loved one is being resuscitated.					
Family members will panic if they witness a resuscitation effort. *(reverse)*					
Family members will have difficulty adjusting to the long term emotional impact of watching a resuscitation effort. *(reverse)*					
The resuscitation team may develop a close relationship with family members who witness the efforts, as compared to family members who do not witness the efforts.					
If my loved one were being resuscitated, I would want to be present in the room.					
Patients do not want family members present during a resuscitation attempt. *(reverse)*					
Family members who witness unsuccessful resuscitation efforts will have a better grieving process.					
Family members will become disruptive if they witness resuscitation efforts. *(reverse)*					
Family members who witness a resuscitation effort are more likely to sue. *(reverse)*					
The resuscitation team will not function as well if family members are present in the room. *(reverse)*					
Family members on the unit where I work prefer to be present in the room during resuscitation efforts.					
The presence of family members during resuscitation efforts is beneficial to patients.					

Please indicate the extent to which you agree or disagree with the following statements:

The presence of family members during resuscitation efforts…

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
is beneficial to families.					
is beneficial to nurses.					
is beneficial to physicians.					
should be a component of family-centered care.					
will have a positive effect on patient ratings of satisfaction with hospital care.					
will have a positive effect on family ratings of satisfaction with hospital care.					
will have a positive effect on nurse ratings of satisfaction in providing optimal patient and family care.					
will have a positive effect on physician ratings of satisfaction in providing optimal patient and family care.					
is a right that all patients should have.					
is a right that all family members should have.					

Twibell et al. (2008)

Family Presence Self-confidence Scale (FPR-BS)

Please indicate the option that best tells how confident you are that you could perform the listed behavior during a resuscitation effort with family members present:

	Not at all Confident	Not Very Confident	Somewhat Confident	Quite Confident	Very Confident
I could administer drug therapies during resuscitation efforts with family members present.					
I could perform electrical therapies during resuscitation efforts with family members present.					
I could deliver chest compressions during resuscitation efforts with family members present.					
I could communicate effectively with other health team members during resuscitation efforts with family members present.					
I could maintain dignity of the patient during resuscitation efforts with family members present.					
I could enlist support from attending physicians for family presence during resuscitation efforts.					
I could identify family members who display appropriate coping behaviors to be present during resuscitation efforts.					
I could prepare family members to enter the area of resuscitation of their family member.					
I could escort family members into the room during resuscitation of their family member.					
I could announce family member's presence to resuscitation team during resuscitation efforts of their family member.					
I could communicate about the resuscitation effort to family members who are present.					
I could provide comfort measures to family members witnessing resuscitation efforts of their family member.					
I could identify spiritual and emotional needs of family members witnessing resuscitation efforts of their family member.					
I could encourage family members to talk to their family member during resuscitation efforts.					
I could delegate tasks to other nurses in order to support family members during resuscitation efforts of their family member.					
I could debrief family after resuscitation of their family member.					

I could coordinate bereavement follow-up with family members after resuscitation efforts of their family member, if required.					

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APPENDIX F: ONLINE LEARNING MODULE CONTENT

Intervention Online Learning Module Content and Educational Strategies

Unit Title	Content and Educational Strategies
1: Introduction to Family Presence during Resuscitation	- Introduction and definition of FPDR. - Evolution of family-centered care and FPDR. - Introduction to FPDR research and professional organization support.
2: Self-Assessment and the Evidence	- Self-assessment of knowledge on cited risks. Instant feedback with evidence-based information dispelling each perceived risk. - Self-assessment of knowledge on shown benefits. Instant feedback with evidence-based information supporting each benefit.
3: Strategies for Implementing Family Presence during Resuscitation	- Presentation of benefits and implementation of family-facilitator role. Sample family-facilitator checklist drawn from the literature. - Presentation of facility FPDR policy development and contents. Sample FPDR facility policy drawn from the literature. - Additional strategies to create awareness about FPDR.
4: Family Presence during Resuscitation Practice Case Study	- Implementation of FPDR practiced with case study focused on an adult patient and family member in a critical care unit. - Instant feedback on case study with evidence-based information.
5: Reflection: Your View of Family Presence during Resuscitation	- Guided debriefing with reflection questions on own personal desires for FPDR. - Guided debriefing with reflection questions on FPDR for patients and family members.
6: Conclusion of Online Learning Module	- Conclusion focused on benefits of FPDR and its availability as an option. - Presentation of ways to grow further knowledge and prepare for FPDR implementation.

Control Online Learning Module Content and Educational Strategies

Unit Title	Content and Educational Strategies
1: Introduction/ Resuscitative Care Overview	- Presentation of the history of CPR and process used to recommend changes in resuscitation guidelines. - Provision of AHA website address for comprehensive information on 2010 guidelines.
2: Cardiopulmonary Resuscitation (Basic Life Support) Updates	- Changes highlighted: CPR sequence and techniques, no "look, listen, and feel", no routine use of cricoid pressure, and new section on post-cardiac arrest care. - Continued emphases highlighted: high-quality CPR, limit pulse checks, and need for a team approach. - Evidence-based rationales provided for each.
3: Electrical Therapies and Defibrillation with Cardiac Arrest	- Change highlighted: precordial thump for witnessed ventricular tachycardia. - Continued emphases highlighted: early defibrillation, use of automated external defibrillators, 1 shock protocol, follow manufacturer energy level directions, no pad placement over pacemakers, and no pacing for asystole. - Evidence-based rationales provided for each.
4: Advanced Airway and Oxygenation During Resuscitation	- Change highlighted: waveform capnography for endotracheal tube monitoring. - Continued emphases highlighted: supraglottic airways as alternative, and no hyperventilation. - Evidence-based rationales provided for each.
5: Medications for Use in Resuscitation	- Change highlighted: no routine use of atropine for asystole or pulseless electrical activity. - Continued emphasis highlighted: prevent CPR delay due to obtaining vascular access. - Evidence-based rationales provided for each.
6: Conclusion of Online Learning Module	- Importance of reviewing AHA guideline recommendations, maintaining certification, and remaining current with research findings.

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