Effects Of An Evidence-based Intervention On Stress And Coping Of Families Of Critically Ill Trauma Patients

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EFFECTS OF AN EVIDENCE-BASED INTERVENTION ON STRESS AND COPING OF FAMILIES OF CRITICALLY ILL TRAUMA PATIENTS

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ABSTRACT

Problem/Purpose: Critical care nurses are frequently exposed to the stress experienced by their patients' families, yet they often do not have the knowledge or skills to help family members cope with the stress of critical illness. While needs and stressors of families of the critically ill have been researched extensively, no prior studies have been conducted to determine the effects of an evidence-based nursing intervention for reducing family members' stress and improving their coping skills. The purpose of this study was to determine if an evidence-based nursing intervention designed to address the needs of family members would reduce stress and improve coping skills in family members of critically ill trauma patients. Additionally, the study assessed the family members' perceptions of how well their needs were met while their loved one was hospitalized in the surgical intensive care unit (SICU).

Methods: Using a quasi-experimental, nonequivalent control group design, an evidence-based intervention for critical care nurses was implemented to test its effect on stress and coping of family members of critically ill trauma patients. The study setting was the SICU at a tertiary university hospital in north central Florida. Subjects were family members of critically ill trauma patients who had been hospitalized in the SICU for at least 48 hours. Participants in the control group completed a packet containing instruments that measured 1) anxiety as an indicator of stress (Spielberger's State-Trait Anxiety Inventory [STAI]); 2) coping (Lazarus and Folkman's Ways of Coping Questionnaire [WAYS]); and 3) assessment of family members' perception of having their needs met while their family member was in the SICU (Family Care Survey [FCS]). An evidence-based family bundle was implemented over an eight-week period and included an educational program for the nurses. After eight weeks, participants in the experimental group were given the same instruments previously administered to the control group. Anxiety levels,

coping skills, and family members' perception of having needs met were compared between the two groups to determine the effectiveness of the evidence-based intervention.

Results: A total of 84 family members participated in the study (control = 39; experimental = 45). The majority were women (n=60), spouse or parent of the patient (n=47), and Caucasian (n=70). Mean ages were 45.9 years for the control group and 47.4 years for the experimental group. No differences were noted in the demographic characteristics between the control and experimental groups. Using an independent samples t-test, no significant differences ($p > .05$) were noted between groups for either state or trait anxiety, although the mean anxiety score was lower in the experimental group. Significant differences between groups were noted on two of the eight coping subscales: Distancing and Accepting Responsibility. Improved coping was noted on four additional subscales: Confrontive Coping, Self-Controlling, Planful Problem-Solving, and Positive Reappraisal. Overall coping scores also improved for the total Ways of Coping Scale (both 50 and 66 item totals). Participants in the experimental group rated four out of eight items higher on the FCS, indicating an increased perception that more of their needs were met, greater overall satisfaction with the care that family members received, increased nurses' consideration of family members' needs and the inclusion of those needs in planning nursing care, and greater encouragement for family members to participate in care. However, only Distancing and Accepting Responsibility were statistically significant.

Although all findings except two were not statistically significant, the trend implies increased satisfaction with family care in areas involving family care and family member needs, including needs in planning care and encouragement to participate in care. In areas regarding information and communication, there was overall less satisfaction in both groups.

Conclusions: This study provides data that can be used as a guide in developing programs that help families function and adapt to the extremely stressful experience of having a loved one who is critically ill. The information can be used to develop future research on larger scales with a longer and more extensive plan for implementation of the intervention to assist in a unit culture change. Nurses can use the results to facilitate practice changes in caring for families of critically ill patients. Modifying the interventions to focus on an interdisciplinary approach to meet families' needs, reduce stress, and improve coping also warrants further development and testing.

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This dissertation is dedicated to family members of the critically ill. They are a community of people from a variety of situations, but they all have one thing in common: they have loved ones who are very sick. They need many things, such as hope, information, and support; but most of all, they just want their loved ones to get better. They are desperately relying on each other and whatever other resources they have to help them. This vulnerable population deserves much more, and it is my intention they get it.

ACKNOWLEDGEMENTS

When I was admitted into a school of nursing over 19 years ago, my husband, Dave, asked me why I didn't become a doctor instead of a nurse. Well, I listened to him, although not exactly in the way he meant. He truly planted the seed that brought me to this point. I could not have completed this dissertation without his support, understanding, and belief in me. My children, Lani and Jonathan, have been cheering for me throughout my journey. Even my granddaughters Jordan, Candace, and Morgan have supported me, with the understanding Grandma will be able to spend more time with them soon.

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CHAPTER ONE: THE PROBLEM

Specific Aim

Stress experienced by families of the critically ill manifests itself in a variety of ways and causes numerous issues. Problems documented include behavioral changes, exhaustion, decreased amount or quality of sleep, poor eating habits, and worsening of health problems.[1-5] In one study, families of the critically ill displayed symptoms of acute stress disorder, and in another, families were determined to be at high risk for post-traumatic stress disorder.[6, 7] Research indicates that a correlation exists between levels of stress and coping skills[8].

Family needs and stressors in the critical care setting have been well studied in literature, as has the relationship between family needs and stress.[6, 9-14] Nurses can help to reduce the stress and improve coping capabilities of their patients' families, but a general knowledge deficit on how to provide the needed assistance often makes it difficult to accomplish. According to Hickey and Lewandowski, 77% of critical care nurses believed it was emotionally exhausting to become involved with families who needed support; and 37% did not consider themselves knowledgeable enough to meet families' emotional needs.[15] Nurses have a limited understanding of the effect critical illness has on families, and their perception of what families need is not the same as what families say they require.[13, 16, 17] However, providing family care is an important component of holistic nursing.[18, 19] For this reason, understanding how to perform and become comfortable with family-centered nursing interventions is important.

The lack of knowledge about the effect of critical illness on families is detrimental to the well-being of patients' families. Family members need information, yet studies indicate this need is frequently not met, so their stress and dissatisfaction increases.[20-22] Nurses believe they are placed in the middle of many family situations.[23] Critical care nurses are expected to provide

expert patient care, continually monitor the patient's status, manage technically sophisticated equipment, and assist family members.[24] In addition to these other responsibilities, it is important for nurses to know how to help critically ill patients' families cope with the stress they experience.

The specific aim of this research study was to assess the effectiveness of an evidence-based intervention for critical care nurses to assist families of critically ill trauma patients in reducing their stress, improve coping skills, and improve SICU family members' perception that their needs were met.

Purpose

Critical care nurses are exposed to the stress experienced by their patients' families on a daily basis, yet the nurses generally do not have the knowledge or skills needed to address the multifaceted issues that this stress elicits. Assisting stressed families also exacerbates the nurses' stress.[25] It has been described by nurses as taking "a lot of energy."[25(p1654)] Special situations such as dealing with potential organ donors is especially taxing on the critical care nurse, because complex nursing care is required for the patient while assisting a distraught family simultaneously.[26] Knowing strategies to help family members should alleviate some of the nurse's workload and stress, thus facilitating better care for the patient's family.

While needs and stressors of families of the critically ill have been researched extensively, no prior studies have been conducted to determine the effects of a formal evidence-based intervention for critical care nurses to reduce family stress, promote coping, and improve family members' perception of their needs being met. The purpose of this study was to establish if an evidence-based intervention that prepares critical care nurses to implement nursing interventions

will reduce stress and promote coping while improving SICU family members' perception of their needs being met.

The following research questions were identified:

1. What is the effect of an evidence-based nursing intervention on the stress of family members of critically ill trauma patients?
2. What is the effect of an evidence-based nursing intervention on the coping skills of family members of critically ill trauma patients?
3. What is the effect of an evidence-based nursing intervention on SICU family members' perception of their needs being met?

Hypotheses

The following hypotheses were tested:

1. Implementation of an evidence-based intervention will decrease the stress of family members of critically ill trauma patients.
2. Implementation of an evidence-based intervention will improve the coping skills of family members of critically ill trauma patients.
3. Implementation of an evidence-based intervention will improve SICU family members' perception of their needs being met.

Definition of Terms

Several terms are used throughout this study. Conceptual and operational definitions are defined in Table 1.

Table 1. Conceptual and Operational Definitions

Term	Conceptual	Operational
Co-champion	Someone who fights or defends for a cause in conjunction with others	Experienced unit nurse who has been trained to defend and support the Evaluate, Plan, Involve, Communicate, and Support (EPICS) program
Coping	Constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.[24]	Score on the Ways of Coping Questionnaire (WAYS)
Critical care nurse	Nurse specializing in care of the critically ill	Registered nurse specializing in care of the critically ill, working in the surgical intensive care unit at the site of the research study
Critically ill trauma patient	Patient who has sustained a traumatic injury and requires comprehensive, specialized and continuous care	Patient that sustained a traumatic injury receiving care in the surgical intensive care unit (SICU) for at least 48 hours
Evidence-based family intervention	Plan designed to teach a specific agenda	EPICS program developed for this research study. Designed specifically to educate nurses on how to best assist patients' families to decrease stress and improve coping skills
Family	Those related to the patient through blood, legal, and emotional ties, both individually and as a family system.[23]	Individuals who were part of the SICU patient's family system and identified themselves as related by blood, legal, and emotional ties.
Family member's perception of needs being met	Perception of nursing care delivered to family members while a loved one is hospitalized	Family Care Survey, used to determine SICU family member's perception of their needs being met

Term	Conceptual	Operational
Stress	A relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being.[24]	Score on the State-Trait Anxiety Inventory (STAI)
Stressor	An activity, event, or other stimulus that causes stress[25]	An activity, event, or other stimulus causing stress to family members of critically ill trauma patients
Surgical Intensive Care Unit	A specialized section of a hospital that provides comprehensive and continuous care for surgical patients who are critically ill[26]	30-bed critical care unit at a tertiary teaching hospital in north central Florida. The patient population includes surgical patients of several specialties including trauma, neurosurgery, orthopedics, otolaryngology, transplant, and oncology

Assumptions

1. The sample of family members of critically ill trauma patients will represent the population of family members of the critically ill; therefore, the results of this research should provide insight on how to assist the general population of families of the critically ill to lower stress, improve coping skills, and improve SICU family members' perception of their needs being met.
2. The instruments used to measure stress and coping have been tested in multiple settings and are established as providing accurate results, so it is expected test results will reflect an accurate representation of these concepts.
3. Participants will be truthful in their responses.

Significance

This research study will provide important information that will benefit critical care nursing by broadening their knowledge about assisting patients' families. Families can be recognized by nursing staff as allies rather than problems, and relationships between family members of critically ill patients and nurses should improve. If the intervention is effective, it may be beneficial to implement in any setting where nurses work closely with family members. Patients will also benefit, because family members can then be an integral part of the healing process.[31] Ahrens, Yancey, and Kollef indicated the patient's length of stay may even be shortened if the family's informational needs are met.[32]

When their stress is high, family members are vulnerable and therefore at risk. Mechanic and Tanner explain this idea by stating, "Vulnerability, the susceptibility to harm, results from an interaction between the resources available to individuals and communities and the life challenges they face."[33] Helping family members manage their stress by improving coping skills will reduce the risk for psychological and physical harm. By conducting this research, the gap between the established evidence-based information on stress experienced by families of the critically ill and the actual practice of critical care nurses can begin to close, and a contribution to the state of the science of nursing will be made.

Critical care nurses, while recognizing families have specific needs, often do not have the knowledge or skills necessary to provide the appropriate assistance. A gap exists between what families of the critically ill need to lower stress and improve coping skills and what nurses can provide. A lack of skills and knowledge possessed by nurses is compounded by a culture that limits contact between patient and family[4, 20, 34, 35] An effective and evidence-based intervention designed to teach critical care nurses how to assist stressed families would fill the gap.

Summary

Four areas were targeted: (1)The inevitability of extreme stress experienced by families of critically ill trauma patients, (2) their abilities to cope with the stress they are experiencing, (3) their perception of having needs met, and (4) the lack of preparedness on the part of their loved ones nurses' in these areas. An intervention was developed and tested; but before developing the intervention, it was necessary to determine what evidence-based actions promoted stress reduction in families, improved coping, and met their needs. The following chapters explain a review of pertinent theoretical literature and previously conducted research, methods used to conduct this dissertation research, the results, and a discussion.

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE AND THEORETICAL FRAMEWORK

Background and Significance

This chapter summarizes the research related to stress and coping of family members of critically ill patients. Relevant theoretical literature is reviewed to provide the rationale for the study. A review of research previously conducted, with a focus on stress and coping of families of the critically ill, provides background data and validation for the research conducted and presented in this dissertation. A conceptual framework for conducting the research is also presented.

Review of Literature

A literature review was conducted using multiple databases. Works reviewed included nursing, medical, and social science literature, using several databases: CINAHL, PubMed, PsychInfo, and Google Scholar. Key words were family, stress, critical care, trauma, and names of specific authors that have conducted research in the area of family members of critically ill patients.

Relevant Theoretical Literature

Most families experience extraordinarily high levels of stress when a family member is hospitalized in a critical care unit.[36] The accumulation of stressors can cause a multitude of problems for the family and the clinicians.[1, 4, 5, 15, 32] Changes in sleeping, eating. and activity patterns occur within families.[4] Emotions of family members are described as intense, and the experience of having a loved one in a critical care unit has been compared to riding on a roller

coaster[35, 37]. The patient can also suffer as a result family members' stress.[32] A review of research findings regarding these stressors and modes to remedy them follows.

The types and amounts of stressors vary among families but have many commonalities. Role changes may be necessary due to the nature of the critical illness[4]. Financial concerns exist, and plans and routines are frequently disrupted.[38] The unfamiliarity of the critical care environment can also be overwhelming.[39, 40] Kirchhoff and colleagues describe uncertainty and lack of control as causes of increased stress for families[41] Sleep is often disrupted, lessening the ability to cope and increasing anxiety.[1] The effects of the hospitalization of a loved one on families' coping abilities result in feelings of disorganization and anxiety that may persist even after the illness is resolved.[42] Twibell describes the coping measures used by families as only "slightly effective," and she says expert nursing support is required to help the family adjust to hospitalization during critical illness.[43] Davidson recommends a structured approach to providing family support.[44]

The diversity found among families adds to the challenge of assisting families. There are other areas of diversity beyond the commonly recognized race and socioeconomic status. Religion and spirituality can play a large part in coping, so nurses need to be aware of any special needs related to families' faiths.[45-47] The needs and stressors of the elderly are not the same as needs of the adolescent in the same family, because family members' worldviews are influenced by developmental tasks and by the era in which they grew up.[48] For example, a 19-year-old college student may not be as stressed by mechanical equipment in the intensive care unit as the 90-year-old man who does not view computers and "modern equipment" as a normal part of life. Personalities that make individuals unique also make them diverse, and care needs to be adapted accordingly.

Nurses are advised to pay attention to three concepts when caring for the vulnerable (which includes families of the critically ill): cultural competence, resilience, and advocacy.[49] The culturally competent nurse will be flexible with interventions. Promoting resilience will help families to cope with the unpleasant situations they face. By advocating for the families, needs may be met more fully, which also helps decrease stress improve coping, and meets their needs.

Relevant Research

Molter pioneered research related to the needs of families of the critically ill and developed the Critical Care Family Needs Inventory,[50] which was later modified by Molter and Leske.[51] Since Molter's groundbreaking findings in 1979, numerous studies have been conducted on needs of families of the critically ill. These studies indicate that for 30 years, family needs have remained basically the same, regardless of patient population, hospital setting, or location. Studies on family needs have been conducted in many countries.[14, 36, 52] Research related to family needs has identified a relationship between family strengths and family needs. The fewer strengths a family has, the greater their demands on nurses; and the greater the family demands, the more assistance they will need.[40]

Plowfield identified two main themes in the experiences related by family members: uncertainty and searching for meaning. Uncertainty is classified into three main categories: altered time (alteration in time perceptions), loss of control (absence of power and dependence on strangers), and stress response (intense physical and emotional responses). Searching for meaning refers to the families' attempts to make sense of the sudden health crisis, to find a reason for the crisis, and to find a purpose in their own experiences of waiting.[13]

Plowfield discovered that some family members stay at the hospital constantly, while others use the tactic of staying busy. Comments from families who participated in these studies revealed pertinent information.[13] One wife who chose to continue working while her husband was hospitalized said, "I'm really so busy that I don't have time to think about it…It's helping me because I don't have time to sit and worry…". [13(p236)] Lack of communication was frequently listed as a problem in many studies. Two examples given by Norton and colleagues are as follows: "I could have handled it a lot better today had I been informed of what was taking place with my wife;" and, "Just be straight and honest with the families." These comments are consistent with findings by other researchers who studied the same topic.[20, 43, 53, 54] Lam and Beaulieu studied experiences of family members of patients in the neurological critical care unit and identified similar findings. Families want to be near their loved ones and desire constant communication., and they may stay at the hospital for long periods of time for several reasons. Some of these reasons are a fear of what may happen during their absence, worrying, and a desire to help the nursing staff.[55]

Critical care nurses possess varying levels of understanding and expertise in assisting family members, and they have a variety of beliefs regarding stress. For example, family presence during resuscitation and invasive procedures has been widely studied and is now recognized as beneficial to family members.[56-60] However, there is reluctance on the part of many critical care nurses to promote the concept of family presence. This is related at least in part to the nurse's perceptions of benefits, risks, and self-confidence.[61]

Most nurses believe stress is potentially harmful to their patients.[62] The negative effects of stress are well-documented and include alterations on the immune system and pain responses[62-64] Critically ill patients' contact with family does not usually harm them and may

actually help.[65, 66] In one study, meeting family informational needs shortened the length of illness, length of stay, and cost of hospitalization in critical patients who were at the end of life[32] Psychological well-being was improved in coronary artery bypass graft patients whose families were better adapted to stress.[67] Encouraging contact between the patient and family is a realistic approach to improving patient outcome while meeting family needs. Nurses must also be aware of cultural differences when providing care to families. One qualitative study conducted in Norway explored nurses' perceptions of their encounters with multicultural families. The theme "cultural diversity and workplace stressors" emerged, with two of its four categories being impact on work patterns and communication challenges.[68] The emergence of these categories emphasizes the need for nurses to become proficient in caring for patients of many cultures. Another qualitative study explored how a Mi'kmaq community in Canada perceived hospital care.[69] The Mi'kmaq view health as holistic and linked to spirituality. Results indicated there were problems of misunderstanding, being misunderstood, and feeling understood. They referred to "white man's way" and "white man's world".[69(p 15)] Clearly, there is a need to be culturally aware.

However, critical care nurses' beliefs about what families need do not necessarily correspond with what family members say they need.[17] The perception of a stressful occurrence, which may be interpreted as life-threatening by a family member, is frequently not deemed as critical by nurses.[70] A discrepancy between families' beliefs and nurses' perceptions about stressful occurrences is part of the reason a gap exists between what families need and what interventions they receive from nurses to aid them in stress management.

Twibell described many strategies nurses used to reduce stress of their patients' families. Critical care nurses can assess the family members' stress and adapt their interventions

accordingly. [43] They can identify family members at high risk for stress and give particular attention to those needing assistance the most. Supportive nurse-family relationships can be developed and support groups can be created. Although nurses are busy, they can arrange to have time to communicate with family members. Ineffective coping can be discouraged or decreased through nursing interventions'[43, 44, 71] Families can be assisted in participating in patient care according to individual desires and capabilities. In addition, nurses can encourage families to obtain adequate sleep and nutrition by knowing these two patterns are affected by stress.[4]

Nurses who have researched family needs and stressors have recommended interventions, but the characteristics and limitations of critical care nurses have an impact on what they actually can do. In exploring the comforting role of critical care nurses, Walters discovered three sub-themes: focusing, balancing, and being busy.[72] These sub-themes are characteristic of critical care nursing and make providing family assistance a challenge. Jezewski's findings support the three sub-themes. She describes the critical care nurse's role in obtaining a "do not resuscitate (DNR) status" of a critical patient as decision-maker; educator of patients, families, and other staff; and advocate. [73] Making decisions, educating, and advocating are all actions concerning focusing, balancing, and being busy. These characteristics are also limitations, because focusing and balancing requires setting priorities and limiting how much time can be spent with a family when patient care takes precedence and the critical care nurse is busy. It is likely the critical care nurse who is able to focus and balance effectively while being busy would be self-confident. A relationship exists between critical care nurses' self-confidence and their willingness to support family presence during resuscitation, which necessitates interaction between nurses and family members.[61] The nurses' balancing, focusing, and being busy occurs at a very stressful time for everyone, so the concept of this relationship is reasonable. One hospital's recent solution was to

create the role of a family care specialist for the facility's ICUs. Results were encouraging. After its implementation, nurses found their workloads were lightened, and family members reported a higher level of satisfaction.[74]

Restructuring visitation to accommodate families is another effective way to lower family stress.[65, 75, 76] A structured program of phone calls from a critical care nurse was proven effective in meeting informational needs of the family.[77, 78]

DeJong and Beatty identified the interventions that were most effective in helping families as providing emotional, appraisal, informational, and instrumental support. Emotional support encompasses comfort measures. Appraisal support includes respect for an enhancement of the family members' roles. Informational support consists of providing needed information. Instrumental support involves providing goods and services.[78] Leske adapted Molter's Critical Care Family Needs Inventory in 1986 by dividing the 45 needs into five categories.[51] The categories, which are support, comfort, information, proximity, and assurance, are needs that match interventions discussed by DeJong and Beatty. [78]

Family needs and stressors in the critical care setting have been well-established in literature.[6,10-13] Critical care nurses are aware of the issues that family members face; however, a gap exists between what nurses perceive as needed and what families say they need.[17] Although literature is rich with information regarding needs and stressors of families, it is also evident that critical care nurses are not meeting needs or dealing with stressors adequately.

Critical care nurses are highly skilled but also extremely busy. Juggling patient care, monitoring equipment, following physician's orders, and keeping up with documentation is a challenge, and they must constantly prioritize their actions. Critical care is already a high-stress specialty, and nurses may view family members as intruders rather than extensions of the

patients, actually adding to their workload rather than decreasing it. Nurses sometimes consider themselves as authorities whose work is interfered with by family members.[53] Some view visitors, including family members, as physiologically stressful to patients, so nurses try to restrict contact to protect their patients.[34] Nurses are not usually well-educated on how to involve families in their practice; and without the appropriate education and training, it is extremely difficult to handle the stressors families experience. However, health care providers are advised to consider families as allies and partners in treatment and care.[19]

Strategies to change organizational culture have been effective in making changes within nursing units and within health care facilities. Efficiency and patient experience was improved in a London emergency care department by using a carefully designed plan.[79] Compliance with evidence-based protocols in an intensive care unit was improved through planning, tracking compliance, and a positive reward program.[80] Some success was met in improving compliance in infection control of cardiothoracic patients during and after surgery by initiating a program including instruction, follow-up, feedback, and posters[81].

The Clinical Practice Guidelines for Support of the Family in the Patient-Centered Intensive Care Unit were established by the American College of Critical Care Medical Task Force 2004-2005 and published in 2007. Guidelines were based on more than 300 articles and included decision-making, coping, staff member stress, cultural and spiritual support, visitation, family presence, and palliative care. Of 43 recommendations, 25 were found to be evidence-based and are included in the guidelines.[82] These guidelines correlate closely with the initial findings of Molter, and later studies conducted internationally, which furthered the investigation of family needs. [6, 21, 83-85]

The CHEST Critical Care Family Assistance Program (CCFAP) was established to respond to the unmet needs of families of critically ill patients in critical care units by providing education and family support. The CCFAP's objectives include meeting family needs at a multidisciplinary level, increasing family satisfaction, improving comprehension of information explanations, improving hospitals' ability to respond to family needs through a structured feedback model, increasing the medical team's knowledge and understanding of the CCFAP, and increasing knowledge about it within medical and lay communities.[86]

Table 2 describes the research done on effective interventions to assist family members of critically ill patients. In summary, most interventions involved improving communication and included conferences, written material, telephone calls, including the family as part of the team, nurses' use of reflective practice intervention when interacting with family members, and an educational program for mothers of critically ill pediatric patients. One research study consisted of involving family members in direct patient care, and another studied presence during resuscitation's effects on family members. More research is needed on family involvement in direct patient care. [32, 77, 52, 87-93]

Table 2. Interventions Found Effective in Assisting Critical Care Families

Article	Setting	Sample	Tool(s)	Intervention(s)	Design	Outcome
Ahrens, T., Yancey, V., & Kollef, M. (2003).[27]	End-of-life (EOL) patients, medical intensive care unit (ICU)	51 patients. 108 control, 43 intervention. Most prominent: White race, respiratory, Female. Mean age 61.1, Mean Acute Physiology and Chronic Evaluaion (APACHE) 28.6, 32.1	APACHE II Data collection of ICU length of stay, hospital length of stay, hospital variable direct charge per case, hospital variable indirect charge per case, and hospital fixed cost per case	Communication was improved (communication barriers found; caregiver roles [physician and clinical nurse specialist] defined; consistent communication; family spoken to as a team; education provided for staff)	Differences between control and experimental groups were determined using T tests and X^2 tests	Shorter LOS in hospital for patients in experimental group
Appleyard, M. E., Gavaghan, S. R., Gonzalez, C., Ananian, L., Tyrell, R., & Carroll, D. L. (2000).[70]	Five- bed coronary care unit (CCU), large academic medical center	Three groups, family members, 58: 28 pretest, 30 post test nurses, volunteers	Critical Care Family Needs Inventory (CCFNI)	Waiting room volunteers were trained on communicating with family members	Pre-test and post-test comparative groups	Comfort improved for post-test groups

Article	Setting	Sample	Tool(s)	Intervention(s)	Design	Outcome
Chien, W. T., Chiu, Y. L., Lam, L. W., & Ip, W. Y. (2006). [42]	Hong Kong 20-bed ICU, regional general hospital	66 family members, 32 control, 34 experimental	Chinese CCFNI and State-Trait Anxiety Inventory	For family: Patient-driven orientation, education from one nurse (not many), three-page pamphlet, continuity of care, follow up telephone contact	Quasi-experimental with two randomized study groups using a pre- and post-test	Experimental group had significant improvement in needs being met and stress being reduced
Kirchoff, K., Palzkill, J., Kowalkowski, J., Mork, A., Gretarsdottir, E., (2009)[94]	Critical care unit at University of Wisconsin Hospital	22 next of kin, control 11, experimental 11	Evaluation of the Experience of Withdrawal And Profile of Mood States, short form	Prepared messages delivered to next of kin in experimental group	Two group pre-test post-test quasi-experimental	Experimental group had better understanding of withdrawal, less mood disturbance, less negative moods, more vigor than the control group

Article	Setting	Sample	Tool(s)	Intervention(s)	Design	Outcome
Medland, J.J., & Ferrans, C.E. (1998).[58]	10 bed medical ICU, large Midwestern university hospital	30 family members, 15 each in control and experimental group	Satisfaction With Overall Care Questionnaire and assessment of information provided	From nurse to family: discussion within 24 hours of admission, informational pamphlet, daily telephone call	Two group pre-test post test quasi-experimental	Fewer incoming calls from experimental group; satisfaction with care increased; better perception of how needs were met
Lautrette, A., Darmon, M., Megarbane, B., Joly, L. M., Chevret, S., Adrie, C., et al. (2007.[71]	22 ICUs in France	126 family members, 63 each in control and experimental group	Impact of Event Scale (for PTSD) and Hospital Anxiety and Depression Scale (HADS for stress)	Experimental group participated in proactive EOL conferences and were provided a brochure; control group participated in the usual EOL conference.	Randomized control trial	Families were able to speak and express emotions at proactive meetings and felt more supported. Decrease in PTSD, anxiety, and depression symptoms.
Holzhauser, K., Finucane, J., & De Vries, S. M. (2006)..[72]	Emergency department at a tertiary referral teaching hospital in Queensland	99 family members	Telephone and survey tool, interviews	Experimental group was present at family members' resuscitation	Quasi-experimental study with two randomized study groups with pre- and post-test	Families found it beneficial to be present in the resuscitation room. Relatives were better able to cope with the situation

Article	Setting	Sample	Tool(s)	Intervention(s)	Design	Outcome
Peden-McAlpine, C., Tomlinson, P., Forneris, S., Genck, G., & Meiers, S. (2005).[73]	Two Midwestern children's hospitals	8 staff nurses	Open-ended intensive audiotaped interviews	Educated nurses on reflective practice intervention to facilitate incorporation of family intervention into practice	Qualitative, phenomenological research	Resulted in double-loop learning that changed nurses' attitudes about families, enhanced communication, and brought family stress to their awareness.
Melnyk, B. M., Alpert-Gillis, L., Feinstein, N. F., Crean, H. F., Johnson, J., Fairbanks, E., et al. (2004).[74]	PICUs in 2 children's hospitals	163 mothers	Behavioral Assessment System for Children (parent form)	Mothers received three-phase educational-behavioral intervention, program focusing on increasing parents' knowledge and direct participation in children's emotional/physical care.	Randomized, controlled trial with follow-up assessments 1, 3, 6, and 12 months. after hospitalization.	Decreased stress for experimental group
Dowling, J., & Wang, B. (2005).[75]	ICUs in Illinois and Oklahoma	563	Modified version of family satisfaction survey of Heyland et al.	Multiple interventions with four intents: improve family ratings of quality of communication, quality of care,	Pre-post test	Communication, quality of care, and areas surrounding treatment were improved on a multi-

Article	Setting	Sample	Tool(s)	Intervention(s)	Design	Outcome
				areas surrounding treatment, and decrease family stress		disciplinary level; family stress was decreased for the post-test group.
Silvernale, M., Williamson, M., & King, C. (2006).[76]	Cardio-thoracic intensive care unit	17 families	Hospital Anxiety and Depression Scale, FAMCARE, Satisfaction Survey of hospital	Family members were trained on how to provide oral care to their loved ones.	Pre and post test to same group	Decreased anxiety level, 62%

Conceptual Framework

The research study is based on Lazarus and Folkman's Transactional Model of Stress and Coping. Lazarus and Folkman view stress as a psychological reaction response and define it as, "…a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being."[28(p19)] The person's view of the stressor is called cognitive appraisal, a process through which the demands of the person-environment relationship are evaluated. Coping is defined as, "…constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person."[28(p141)] The model suggests that a stressor is filtered through an individual's perception of the environment, and coping is accomplished by adapting thoughts and actions according to how the person views the stressor. The reaction between person and environment is reciprocal and bidirectional—one is caused and affected by the other.[28]

According to Lazarus and Folkman, the stressed person conducts two appraisals: primary and secondary. During primary appraisal, the person identifies the stressor(s). Each stressor falls into one or more of the categories of harm/loss, threat, or challenge. Once the stressor is identified, secondary appraisal occurs. At this time, the individual evaluates what might and can be done.[28]

This model can be applied to stress experienced by families in the critical care setting (Figure 1). The family and its members are affected by the environmental stressor (the critical care experience), resulting in stress. How the experience is appraised initially and secondarily, including available resources, determines how coping will occur, whether effectively or

ineffectively. With the interventions of nurses who are knowledgeable about family assistance, coping mechanisms are strengthened. Without the appropriate nursing interventions, fewer resources are available to the family, coping is less effective, and stress increases. Recognizing an individual is part of a larger family system with dynamics, such as specific coping mechanisms and interpersonal reactive patterns, explains why an individual reacts to a situation in the critical care setting in a particular way.

Bowen's Family Systems theory contends that reciprocity exists between family members. A change in one family member is followed by a compensatory change in another. Within the family system, dysfunction of one part (or member) is always accompanied by overfunction of another.[95] If one family member's ability to function is negatively affected, another family member will fill the void. If stress brought on by the critical illness of a family member results in dysfunction of one family member, someone else will overfunction. Ideally, this reciprocity should result in an equilibrium that results in an effectively functioning family system. However, excessive stress (as perceived at primary appraisal by the individuals within the system) may result in disequilibrium within the family. Nursing assistance can facilitate a positive secondary appraisal, which should result in effective coping, resolving the disequilibrium. Bowen's theory augments Lazarus and Folkman's theory in the present study. Individuals within each family system have commonalities that are rooted in ethnic, cultural, and social backgrounds.[96-98] Both stressors from past family history and those that are current affect family members' responses to the critical care experience.[71] Therefore, by following Lazarus and Folkman's theory, it can be assumed that nurses can make a difference by intervening at a point that will help families (both as individuals and as systems) make a secondary appraisal of their stressful situation and facilitate effective coping. Figure 1 illustrates this process

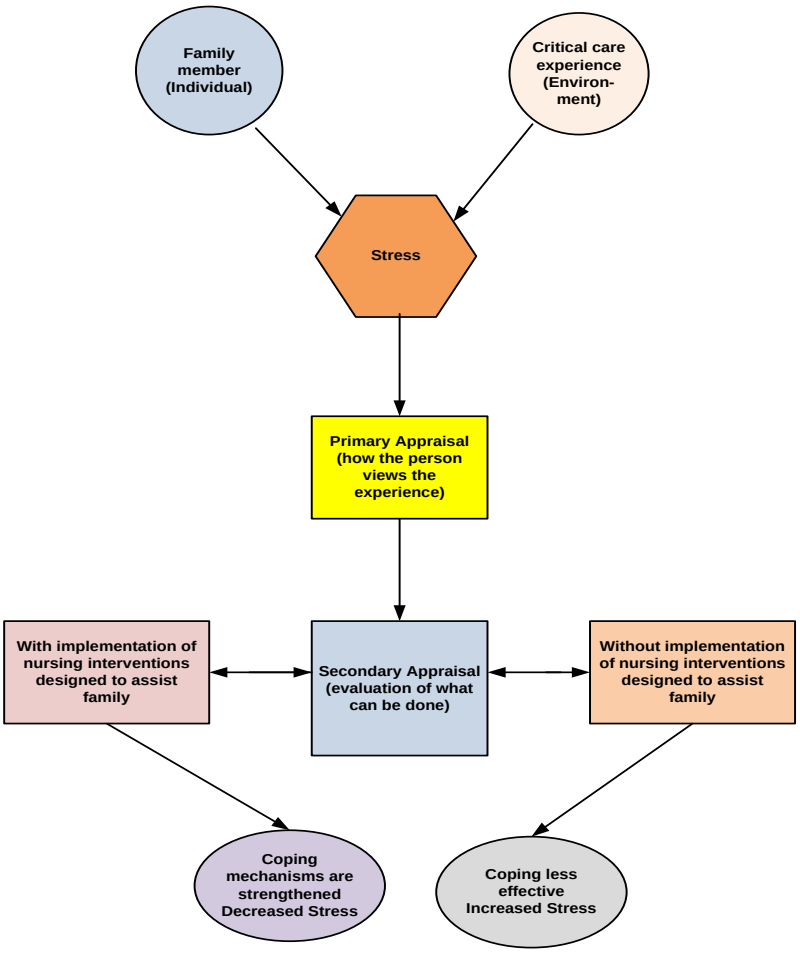

Figure 1. Lazarus & Folkman's Transactional Cognitive Theory of Stress as Applied to Family Members' Critical Care Experience with and without Assistive Interventions by Nursing

Summary

A review of the literature indicates families of the critically ill experience increased stress, possess limited coping skills, and have specific needs. They can be assisted by their loved

ones' nurses; but despite acknowledging that families need their support, critical care nurses are often reluctant to provide assistance for a variety of reasons.

Previous research on interventions to assist families of the critically ill focus primarily on communication, which is reasonable, since information is one of the greatest needs families have.[21] Interventions found effective facilitate communication, support, and family involvement. Since the initial steps in the nursing process are evaluation through assessment and then planning care, the EPICS family bundle, an evidence-based intervention that focuses on the five concepts of *evaluation, planning, involvement, communication,* and *support,* provides a foundation for critical care nurses to develop their own plans to assist families. The EPICS evidence-based intervention, designed in a way to facilitate cultural change within the unit, is a potentially viable answer to the problem.

CHAPTER THREE: METHODS

Design and Research Methods

Design and methods were selected after researching families of the critically ill, their need, consulting other researchers, and careful consideration. They are described in detail in this chapter.

Design

A quasi-experimental design, in the form of a nonequivalent control group pretest-posttest design, was used to conduct the study. The nonequivalent control group, pre-test-post-test design, is shown as follows.[81(p183)]

O^1

X

O^2

O = measures of family stress and coping

X = EPICS intervention

Possible Extraneous Variables

Extraneous variables were controlled to the greatest extent possible in an effort to minimize the effects of groups testing at two different times. Homogeneity of patient population (critically ill trauma) and locale (all hospitalized in same unit) controlled some of the extraneous variables that occur with hospitalized patients, such as the variations of family response according to disease (i.e., all patients had a trauma diagnosis).

Because the control group and experimental group were not tested at the same time, it is possible that occurrences affecting the general population would alter stress and coping skills.

For example, a natural disaster that destroys homes would increase overall stress, so if one of the groups was tested during such a time, the results could be skewed. The EPICS evidence-based intervention was implemented during an eight-week period to decrease the likelihood of confounding occurrences that could affect results. Further, state and trait anxiety were evaluated separately as subsets.

Subjects and Sampling

Subjects

Family members of patients hospitalized for any reason experience added stress. However, critical illness is especially stressful, and the stress of unexpected hospitalizations due to trauma is generally greater than the stress of expected or planned hospitalizations.[70] Trauma primarily affects the young, and the majority of trauma patients are male.[100] Trauma is unexpected and unplanned, and many of the patients are of the age when they are parenting and supporting families financially. Therefore, participants were selected from families of critically ill trauma patients. Subjects were selected using convenience sampling of family members of patients admitted with a trauma diagnosis.

Inclusion/Exclusion Criteria

To ensure participants represented the target population of families of critically ill trauma patients, inclusion/exclusion criteria were met prior to participation. Inclusion criteria included: (1) participant's loved one was admitted to the surgical intensive care unit (SICU) for at least 48 hours with a diagnosis of trauma; (2) participant was at least 18 years old, (3) participant was a spouse, parent, child, sibling, or significant other and defined him/herself as family member; (4) participant was able to read the material in English; and (5) no more than two family members

per eligible patient participated. Within each family, participation by the next of kin and/or significant other was sought first when possible. In cases where more than two in a family desired to participate, the social worker assisted in determining the family member most appropriate to enroll based on closest emotional ties to the patient. .

Sample Size

A sample size of 134 family members was initially planned. Sample size was determined through a power analysis, using G-Power software.[101] Using an F-test (ANOVA, special) and having a medium effect size of .4, α error probability of .05, and a power of .80, it was determined the sample size should include 56 in each of the control and experimental groups (112 total). Assuming 80% would actually complete all forms, 67 subjects were needed in each group (134 total). An adequate sample size reduces the possibility of a Type II error.

Variables

Dependent variables for the study were, (1) stress experienced by families of critically ill trauma patients, (2) family members' ability to cope, and (3) SICU family members' perception of their needs being met. The independent variable was implementation of the EPICS evidence-based intervention. Demographic data included (1) relationship to patient, (2) length of time since patient's hospital admission, (3) gender of participant, (4) age of participant, (5) age of patient, (6) ethnicity, and (7) race.

Intervention

The EPICS evidence-based intervention consisted of educating nurses how to most effectively help their patients' families. However, for the plan to be effective, nurses needed to

change their customary work patterns, so the intervention also addressed changing the behavior and beliefs of the nurses.

Education

Prior to the eight-week educational program, EPICS was introduced to nurses by providing pens and flashlights that had the logo imprinted on them. The intention was to make the logo visible before the intervention, so an association could be made once education began. Once the intervention began, a computer-based course that met state requirements for trauma-related continuing education was made available to all nurses. The course outlined strategies that would help decrease stress and improve coping of family members, while also considering the family as a unit or system. Related theoretical research was included, and interventions found by researchers to be effective were covered. These interventions included strategies such as improving communication, promoting closeness between the patient and family member, and encouraging the family to participate in nursing care according to capabilities and desires[32, 65, 76, 93]

A pilot test was conducted, at which time the computer-based program was administered to three nurses who were employed in another critical care unit. Based on the data from the three nurses and staff from the nursing education department, two contact hours were awarded to those who took the course and successfully completed the post-test. To determine content validity, two experts in nursing education who were both doctorally prepared evaluated the program. Minor adjustments were made according to their recommendations. Table 3 provides a brief outline ofthe course content, and a more detailed outline is provided in Appendix F.

.

Table 3. Outline of Content of EPICS Intranet Education

Title: EPICS—How Helping Families Benefits Everyone (And How to Make It Work)

Objectives:

Upon completion of the program, attendees will be able to:

1. List basic needs of families of the critically ill
2. Explain the relationship between needs and stressors
3. Identify the concepts of family systems theories and how they relate to families of the critically ill
4. Identify the components of Lazarus and Folkman's Transactional Model of Stress and Coping and how it relates to families of the critically ill
5. Implement the EPICS program

Outline:

I. Stress and the Critical Trauma Patient's Family
   - A. Extraordinarily high
   - B. Factors other than trauma
   - C. Consequences of stress
     1. Physiologic
     2. Psychological
   - D. Relationship between stressors and needs
   - E. Previously used strategies to help

II. Gap between nursing knowledge and nursing practice
   - A. Reasons
   - B. Solution: The Family Bundle
     1. Foundation: Lazarus and Folkman's Theory of Stress and Coping
     2. Integration of theory into nursing practice
        - a. Case studies
        - b. Examples
   - C. EPICS Family Bundle Concepts
     1. Evaluate
        - a. Family system
        - b. Individually
        - c. Review evidence-based interventions
     2. Plan
        - a. Plan interventions
        - b. Adapt for individual situation
        - c. Review evidence-based interventions
        - d. Relate to theory
     3. Involve
        - a. Talk
        - b. Direct patient care
        - c. Bring items from home
        - d. Listen to family member, use information obtained, i.e. likes and dislikes of patient

e. Review evidence-based interventions
f. Relate to theory

4. Communicate
   a. Provide information
      i. Understandable
      ii. Compassionate
      iii. Informative
      iv. Friendly
   b. Listen
      a. Review evidence-based interventions
      b. Relate to theory

5. Support
   a. Arrange meetings with multiple disciplines
      i. Physicians
      ii. Help find answers
      iii. Review evidence-based interventions
      iv. Relate to theory

C. Procedures for continuity

1. Nurse to nurse
   a. A part of shift report
2. Multidisciplinary
   a. Include at team rounds
   b. Other disciplines
      i. Use input from them
      ii. Provide information for them

II. Summary

IV. Post-Test

Implementation

Posters with portions of the same information were posted throughout the SICU. Flyers with the EPICS logo and one or two short informative sentences were placed in various locations visible to staff, such as beside the central monitors and in the staff rest room (see Appendix G). A one-page newspaper-like bulletin was posted in the nurses' lounge with a sign-in roster (see Appendix H). The results of baseline assessments of family members' perceptions of needs being met (Family Care Survey results) were made known to staff nurses.

Inservices were provided by the principal investigator (PI) at shift change twice in the morning and twice in the evening. This occurred during the sixth week, after enough time had lapsed to allow for most of the nursing staff to complete the intranet program. All nurses were invited to participate, and they were provided with information and the opportunity for open discussion. Communication and an exchange of ideas were encouraged.

The PI served as champion for the implementation of the EPICS intervention. Key staff nurses who worked in the SICU on all shifts were selected as co-champions. They were selected based on their experience and positions in the unit as preceptors, charge nurses, and their leadership and role modeling of family-centered care. Designation as co-champion was voluntary. Co-champions took the lead and served as advisors to other staff members who were attempting to incorporate the EPICS family bundle into their nursing care. The PI met twice with the co-champions in group meetings and individually throughout the eight week program to provide guidance, support, and recommendations throughout the implementation, and to obtain feedback from the co-champions.

The phases of the program were introduced and conducted following a sequence designed to allow time for each part to be effective. Table 4 is the outline that provided the structure.

Table 4. Implementation Plan of EPICS Intervention

Week	Intranet Education	Flyers	Newspaper bulletin	Other
1	Begin	EPICS Overview	EPICS Overview	Select co-champions
2	Continue	Evaluate	Evaluate and plan	Train co-champions
3	Continue	Plan		Follow up with co-champions
4	Continue	Involve	Involve and communicate	
5	Continue	Communicate		
6	Continue	Support	Communicate and support	Workshop
7	Continue	Review	Review	
8	Continue	Review		

Culture Change

A systematic review of organizational culture change indicated five items that are effective in making changes. Items that best facilitate a culture change in a critical care unit are:

1. Setting a goal of quality culture and activities to guide the development of a new organizational culture that incorporates the family.
2. Change in focus from problem-solving to building on success.
3. Ensuring input for the program is both multidisciplinary and from nursing staff that will be affected.
4. Creating a reward system, which may encourage cooperation of nursing staff.
5. Ensuring nurses feel empowered by the change, not restrained.

Following these points and using evidence-based information for the content made the project both scientific and more likely to succeed.[102]

The research was conducted at a hospital that had obtained Magnet® status. Magnet® hospitals recognize nursing excellence. A facility with this designation has a reputation for

disseminating successful nursing practices and strategies.[103] Therefore, it was expected the goals and activities of the facility would guide the development of a new culture. The EPICS program was introduced and is expected to continue as a positive and successful change, rather than a problem. Participation of physicians and the social worker was planned as a part of the program, and input from the nurses was an important feature. The intranet program was developed with approval for two contact hours of free continuing education to meet trauma continuing education requirements. Nurses could participate at any time they found convenient. Inservices were planned as an interactive way to obtain suggestions from nursing staff on how to make the program a success. Patient and family satisfaction was already being tracked by nursing administration, and positive results were rewarded by the hospital in various ways, such as through the nursing manager at staff meetings, or by recognition in hospital newspaper. After the three phases were completed, nurses were notified of differences in results of the STAI, WAYS, and FCS before and after the program. Perhaps the most important finding on how to successfully change an organizational culture involving nurses is that nurses needed to feel empowered by the change, not restrained. An important action was to emphasize the benefits to patient, family, and nurses as a part of the program.

The EPICS intervention was based in part on the objectives of the Critical Care Family Assistance Program[104] and *The Clinical Practice Guidelines for Support of the Family in the Patient-Centered Intensive Care Unit.*[82] Goals of all programs are to provide understandable explanations (communicate) and increase family satisfaction (support) [82, 86] Evaluation and planning are implied through meeting family needs at a multidisciplinary level, because evaluating what is needed and developing a plan is required before one can attempt to meet the

needs. However, little information regarding involvement beyond meetings and rounds is addressed in published recommendations and guidelines.

Although attempting to meet the needs of families at a multidisciplinary level is a worthy effort, the EPICS program was designed for bedside nurses—the caregivers who have the most contact with families. The researcher believed that a program especially intended for critical care nurses would facilitate meeting family needs, lower family stress, and assist with coping at the most inclusive level. The EPICS logo was made visible throughout the unit both prior to the introduction of the educational program through the distribution of pens, penlights, and small signs. Figure 2 is the logo as it was introduced. “The Family Bundle” was not added until after initiation of the educational intervention. Figure 4 is the logo after the intervention was introduced. Components of the EPICS intervention were presented on laminated cards and placed at each bedside..

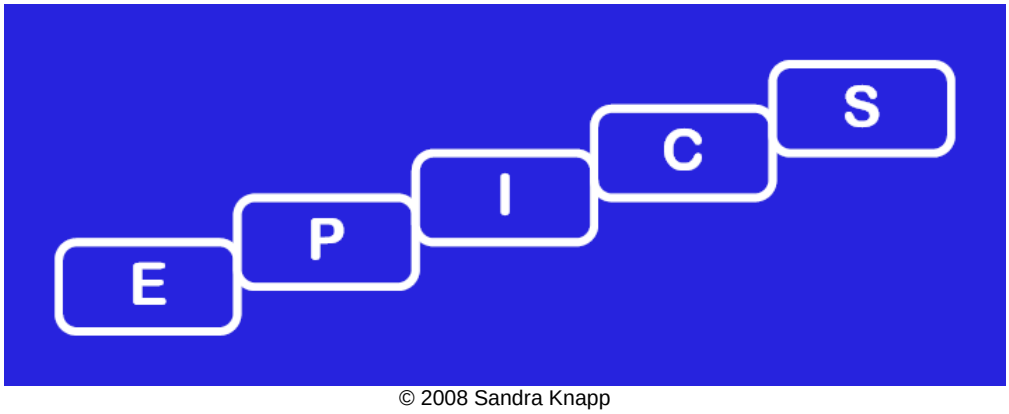

Figure 2. Initial EPICS Logo

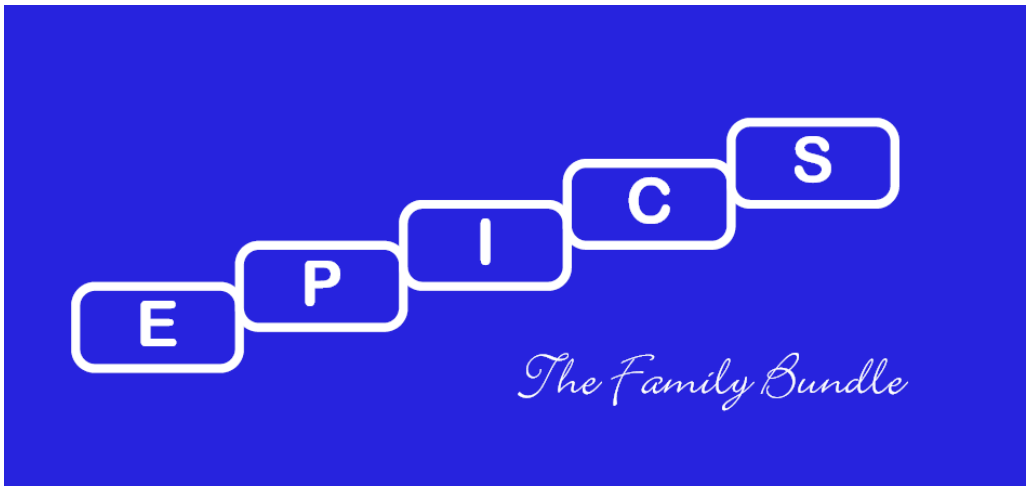

Figure 3. EPICS—The Family Bundle

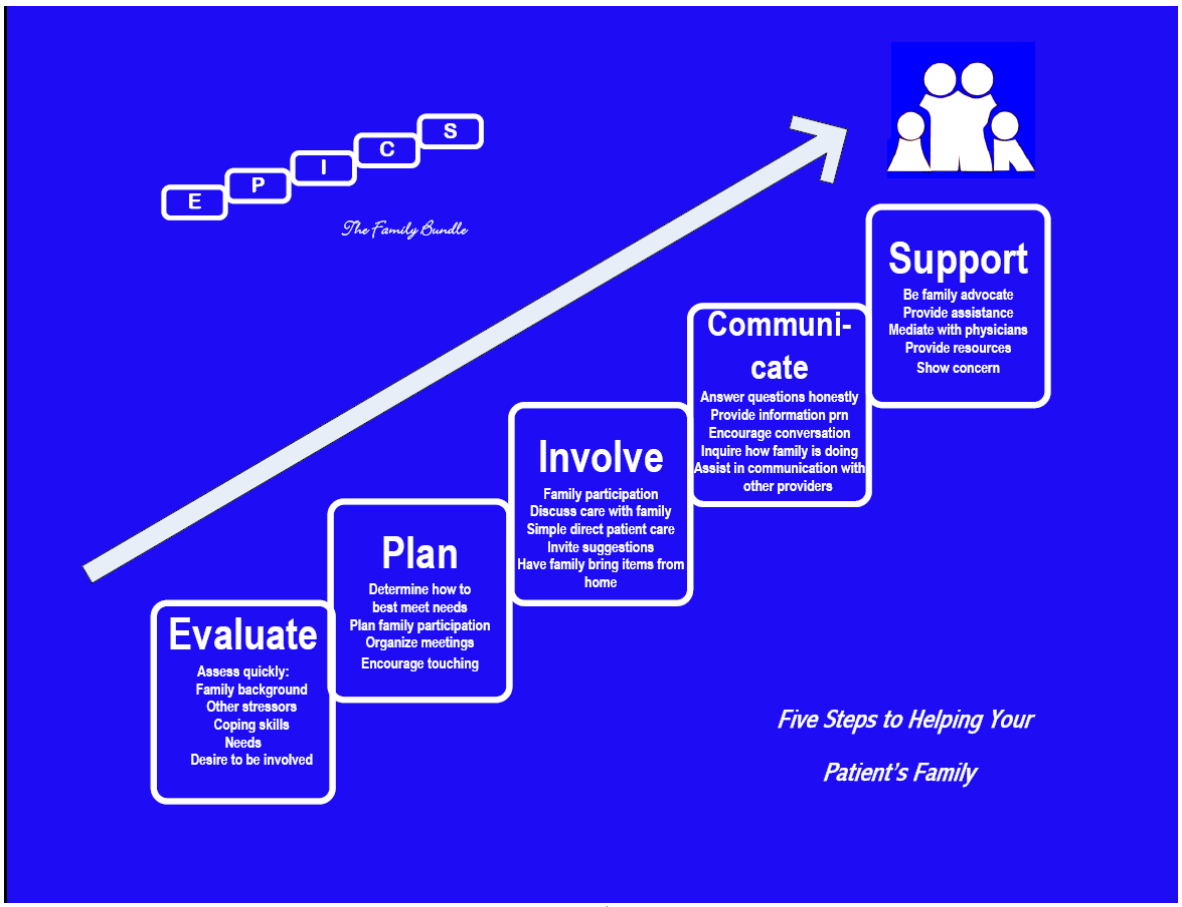

Figure 4. The EPICS Family Bundle—Five steps to helping your patient's family

Setting

The research study was conducted in the SICU at a busy tertiary university medical center in north central Florida. The hospital has 617 beds and a level-one trauma center. The SICU had 30 beds and a patient population including specialties such as trauma, transplant, orthopedics, oncology, neurosurgery, and vascular surgery.[105] The average length of stay for the critically ill trauma patient in the SICU was 4.5 days.[106] During the 2006-2007 fiscal year, 2,472 trauma patients were seen at the emergency room, approximately 25% of them were admitted to critical care units (pediatric, neurosurgical, burn, and surgical), and 342 went to the SICU. An average of 28.5 trauma patients were admitted monthly to the SICU.[107]

Ethical Considerations

Approval

The study was approved by the Institutional Review Board (IRB) at the research site. The PI was a doctoral student at the time the research was conducted, and the university IRB agreed to rely upon the research site's IRB as the IRB of record. No changes were made to the study protocol without the approval of the IRB of record.

Protection of Human Subjects

Participation in the study was voluntary; no family member was coerced into participation. All participants were asked to read and sign an informed consent, and the researcher or designee was present at the time to answer any questions. No participant was permitted to begin answering the questionnaires until the informed consent was signed and the participant had an opportunity to ask questions. A copy of the informed consent was provided to the participant at that time. No harm was anticipated for participants.

Potential Risks

No information that personally identified participants was collected on any instrument. Each participant was issued a unique numeric identification code that was included on each of the research instruments.

"Standards of care" is defined as "the degree of care or competence that one is expected to exercise in a particular circumstance or role."[108] Since nurses are legally bound to provide the same basic standard of care to all patients, all patients received appropriate care, regardless of family members' participation status in the research project. The informed consent clearly indicated the option to accept or refuse participation. Participation or nonparticipation in no way placed the patients or family members at risk, and participants could withdraw at any time without consequences.

Potential Benefits

No direct benefits were anticipated because of participation in the study. Information obtained from the research was used to promote stress reduction in families of the critically ill in the future. If success was achieved in lowering the stress of family members and improving coping skills, this plan or a similar method may be used in other health care situations and at other institutions with the support of evidence-based research.

Confidentiality

To ensure confidentiality of answers, all forms were locked in boxes held by the researcher until all data were collected and the statistical analyses were completed. Family members were provided with a private area, such as a family conference room, to complete forms to maintain confidentiality. Most family members, however, preferred to remain at the

bedside. Only the consent contained the name of the participant. Once the consent was obtained, it was kept separate from all other forms. After three years, the papers will be destroyed using a shredder.

Instruments

Instruments used were a combination of tools previously developed, used, and tested, or were instruments created specifically for this research. Instruments used to measure stress, coping, and perception of family needs being met were the State-Trait Anxiety Inventory (STAI), the Ways of Coping Questionnaire (WAYS), the Family Care Survey (FCS), and the Family Member Demographics Tool (FMDT).

State-Trait Anxiety Inventory (STAI)

The literature review describes conflicting definitions of stress and anxiety and their relationship, with an overlap between the two terms. [28] Anxiety is an unpleasant state or condition, which is induced by stress.[109] Therefore, the effects of a stress-lowering intervention could be measured by evaluating anxiety before and after the intervention. The STAI has been used in many previous research studies to measure the effects of an intervention on stress or anxiety in a variety of settings, including families of the critically ill and in conjunction with the Critical Care Family Needs Inventory (CCFNI).[52, 70, 109-114]

The STAI is a self-reporting tool, consisting of 40 statements: 20 related to state anxiety, and 20 related to trait anxiety[109]. A Likert-type four-point rating scale is used. Possible scores range from 40 to 160, with higher scores representing higher anxiety. The tool is written on a sixth grade level..[109]

The STAI was developed with the intent of creating a test that could provide an objective measure of state and trait anxiety. State anxiety is transitory, while trait anxiety is relatively stable. Over 6,800 individuals were included in the sample that was tested during development, standardization, and validation of the first form of the test; later, over 5,000 were tested in the construction and standardization of Form Y, the version that is currently used.[109] The STAI has been widely used in many languages and among numerous populations, including high school and college students, psychiatric patients, medical and surgical patients, obstetric patients, the chronically ill, and the elderly.

Concurrent validity was evaluated by comparing the STAI to the Institute for Personality and Ability Testing (IPAT) Anxiety Scales (0.75 to 0.76) and the Taylor Manifest Anxiety Scale (0.79 to 0.83). Reliability coefficients of test-retest on high school and college students at five intervals were 0.68 to 0.86 for the trait subset and 0.16 to 0.62 for the state subset. The internal consistency of the test with four groups (working adults, college students, high school students, and military recruits) ranged from 0. 86 to 0.95 for state anxiety and 0.89 to 0.91 for trait anxiety.

Construct validity for the STAI was determined by evaluating test results of three groups: military recruits, who were tested shortly after they began highly stressful training programs, and college and high school students, who were tested under relatively non-stressful conditions. Results were as expected. Anxiety scores were considerably lower under relaxed conditions than normal or especially stressed conditions. Items were carefully evaluated during development for content validity. Norms were based on samples of working adults (1,838) college students (855), high school students (424), and military recruits (1,964). Means ranged from 35.2 to 47.01 for

state anxiety and from 34.79 to 40.97 for trait anxiety. The lowest reported alpha coefficient was 0.86.[109]

The STAI is a well-tested and widely used tool. Its possession of both trait and state dimensions adds to its usefulness, since understanding a family member's general anxiety (trait) as differentiated from feelings of the present (state) would be useful in determining how to assist the person most effectively. It has been used on many occasions in a variety of settings and was selected by other researchers to use when researching the stress or anxiety of family members of the critically ill.[52, 70, 111, 112] When compared to five other instruments by this researcher, it was found to be superior.[115]

In the current study, internal consistency reliability of the STAI was evaluated using Cronbach's alpha. State and trait subsets were evaluated separately. Results were .92 for both subsets. These values correspond with alpha coefficients reported by the authors. Table 5 summarizes this information. Test-retest reliability in the current study was assessed. When administered to two family members twice on the same day, agreement was 98% with both participants. Table 6 summarizes this information.

Table 5. Internal Consistency as Determined by Spielberger and in Current Study[109]

Subjects	**Working Adults**		**College Students**		**High School Students**		**Military Recruits**		**Family Members of Trauma Patients**
	M (1,387)	F (451)	M (324)	F (531)	M (202)	F (222)	M (1,893)	F (71)	(84)
State	35.72	35.20	36.47	38.76	39.45	40.54	44.05	47.01	54.17
Mean	10.40	10.21	10.02	11.95	9.74	12.86	12.18	14.42	12.33
S. D.	*.93*	*.93*	*.91*	*.93*	*.86*	*.94*	*.93*	*.95*	*.92*
Cronbach's α									
Trait	34.89	34.79	38.30	40.40	40.17	40.97	37.64	40.03	37.37
Mean	9.19	9.22	9.18	10.15	10.53	10.63	9.51	9.90	10.98
S. D.	*.91*	*.91*	*.90*	*.91*	*.90*	*.90*	*.89*	*.90*	*.92*
Cronbach's α									

Table 6. Test-Retest Reliability of Instruments

Instrument	**Family Member 1**		**%**	**Family Member 2**		**%**
	Time 1	**Time 2**		**Time 1**	**Time 2**	
State	88	87	98%	101	98	97%
WAYS Total 66	58	62	95%	55	48	87%
Family Care Survey	35	32	91%	40	40	100%

Ways of Coping Questionnaire (WAYS)

WAYS is a self-reporting tool dealing with "problem-focused" or "emotion-focused" coping. Problem-focused coping refers to efforts to manage coping, while emotion-focused refers to attempts to regulate coping. The instrument is used primarily to research the coping process. The authors identify measuring the effects of interventions as one of the possible uses of the tool.

WAYS consists of 66 items and uses a four-point Likert-type scale with responses ranging from "does not apply or not used" to "used a great deal." Possible scores range from 0 to

198, with higher scores representing use of more coping skills. Eight coping subscales are derived from 50 items on the tool (see Table 7). The tool is recommended by the authors as useful for individuals from high school through adult ages, so it is appropriate for this research study. It takes approximately ten minutes to complete.[116, 117]

Table 7. Description of the Coping Scales

Confrontive Coping	Describes aggressive efforts to alter the situation and suggests some degree of hostility and risk-taking.
Distancing	Describes cognitive efforts to detach oneself and to minimize the significance of the situation.
Self-Controlling	Describes efforts to regulate one's feelings and actions.
Seeking Social Support	Describes efforts to seek informational support, tangible support, and emotional support.
Accepting Responsibility	Acknowledges one's own role in the problem with a concomitant theme of trying to put things right.
Escape-Avoidance	Describes wishful thinking and behavioral efforts to escape or avoid the problem. Items on this scale contrast with those on the Distancing scale, which suggest detachment.
Planful Problem Solving	Describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem.
Positive Reappraisal	Describes efforts to create positive meaning by focusing on personal growth. It also has a religious dimension.

The authors of WAYS state that traditional test-retest estimates of reliability are inappropriate due to the variability of the coping processes measured, and they advise looking at the internal consistency of the coping measures to determine validity. Using this method, alpha coefficients of the eight coping scales range from 0.61 to 0.79. The authors state the consistency of their study results with their theoretical predictions is considered evidence of construct validity, which is reasonable, considering the tool was developed as a "theoretically derived measure."[117(p1)]

WAYS is widely used and well-respected in the research community. Since stress and coping are closely related and the research was designed to decrease stress and improve coping, it was a logical addition to the instruments administered to family member participants.

In this study, internal consistency reliability of WAYS was evaluated using Cronbach's alpha. Results of WAYS were evaluated in three ways and analyzed with reliability coefficients: 1) scores computed for eight subsets derived from 50 of the total 66 statements; 2) a total score of the 50 statements used to compute the eight factors (WAYS Total 50); and 3) a total score for all 66 items (WAYS Total 66). Table 8 provides a comparison of the reliability statistics of Lazarus and Folkman and the current study.

Table 8. Comparison of Reliability of WAYS between Lazarus and Folkman and Current Study

Subset	***Mean***	***SD***	***Cronbach's α***
Confrontive Coping			
Lazarus and Folkman	3.94	2.09	.70
Current Study	5.30	3.46	.69
Distancing			
Lazarus and Folkman	3.05	1.78	.61
Current Study	4.68	2.91	.59
Self-Controlling			
Lazarus and Folkman	5.77	2.87	.70
Current Study	8.32	3.63	.50
Seeking Social Support			
Lazarus and Folkman	5.40	2.40	.76
Current Study	10.32	3.86	.73
Accepting Responsibility			
Lazarus and Folkman	1.87	1.44	.66
Current Study	2.40	2.85	.76
Escape-Avoidance			
Lazarus and Folkman	3.18	2.48	.72
Current Study	8.52	4.68	.74
Planful Problem Solving			
Lazarus and Folkman	7.25	2.34	.68
Current Study	8.24	3.83	.67
Positive Reappraisal			
Lazarus and Folkman	3.48	2.96	.79
Current Study	10.04	4.89	.77

Lazarus and Folkman completed three factor analyses of the 66 items in WAYS. Nine items were eliminated on the basis of marginal factor loadings, or lack of conceptual coherence with their scale, and seven items did not load on any factor consistently and were also eliminated.[117] Because WAYS consists of eight subsets made of 50 questions (WAYS 50), but the total of 66 items (WAYS 66) was presented to participants, reliability coefficients were computed on the totals scales.

Family Care Survey (FCS)

This tool was developed by the researcher to evaluate the effectiveness of the EPICS evidence-based intervention by evaluating family members' perception of their needs being met while a loved one was hospitalized in the SICU. Items were based on needs and stressors of families of the critically ill and the contents of the evidence-based EPICS program. The FCS consists of eight items and uses a five-point Likert-type scale ranging from "strongly agree" to "strongly disagree," with the option of "not applicable" for each item. Three lines are provided for comments (see Appendix E). Table 8 summarizes test-retest results.

Content validity of the FCS was determined by review of two experts who were both doctorally prepared. Internal consistency reliability of the FCS was evaluated and confirmed with Cronbach's alpha of .85.

Family Member Demographics Tool (FMDT)

This tool was developed by the researcher with intent to collect demographic information from participants. It also confirms eligibility by documentation of meeting inclusion/exclusion criteria, including the ability to read the material. Therefore, answering "yes" when asked, "Are you able to read this form without assistance from someone else?" confirmed the participant's ability to read the material. The FMDT consisted of eight items (see Appendix B).

Approval for Use of Instruments

The FMDT and FCS are included in this dissertation (Appendices B and E). Sample statements from the STAI and WAYS are provided as appendices, as the authors do not give permission for complete inclusion in the dissertation[118] (Appendices C and D).

Data Collection Procedures

The study was conducted in three phases. Phase one was pre-testing, phase two was implementation of the intervention, and phase three was post-testing. To eliminate the need to know patient identifiers (i.e. medical record number), the PI was not involved in determining which family members met eligibility criteria. During phase one and phase three, qualifying participants were determined by individuals who already had access to medical records such as the social worker, palliative care nurse specialist, and staff nurse. These individuals approached potential family member participants to determine if they were interested in being contacted by the PI and her designees.

Consent was obtained, and a packet with the research instruments was given to those who agreed to participate. A box was placed in a convenient area by the admission clerk for survey packets to be deposited. The packets were collected daily by the researcher or designee. Data collection occurred as qualifying patients were in the unit and family member participants were available. All data were stored in locked boxes until all phases of the study were completed.

Pilot Testing

All procedures and instruments were pilot-tested on a sample of five family members prior to initiating the study. One minor revision to procedures was made upon review of pilot data. The box used to collect and store survey packets until pickup by the researcher was moved from the family conference room to an area beside the admissions clerk. The admissions clerk was located centrally, and patient/family information was provided there. It was simpler and participants' confidentiality could be better maintained by having the box in that location.

Phase One

Prior to implementation of the intervention, eligible family members were recruited to evaluate stress, coping, and their perception of family needs being met, using the FMDT, STAI WAYS, and FCS. Data were stored for later use. The following steps were used to collect data:

1. Recruit participants. Identify potential family members from discussion with the attending trauma physician, social worker, or nurse manager.
2. Explain the study and procedure to each potential participant and answer any questions they may have.
3. Have informed consent signed and give a copy to each participant for records and key phone numbers.
4. Administer packet containing Family Member Demographics Tool (FMDT), STAI, WAYS, and FCS to each participant.
5. Collect data, maintain confidentiality, and store...

Phase Two

The EPICS evidence-based intervention was implemented. The program consisted of the following:

1. Select and train co-champions based on their volunteer participation and their recognition within the unit as role models.
2. Administer intranet presentation approved for continuing education for trauma.
3. Conduct a follow up workshop for reinforcement.
4. Place one-page flyers in the staff rest rooms, to be changed weekly.
5. Place educational paper in a newspaper format in the lounge with a sign-in sheet.

6. Work with co-champions to foster and role model implementation of the EPICS intervention.

Phase Three

Eight weeks after implementation of the intervention, eligible family members were recruited to evaluate the effectiveness of the program using the FMDT, STAI WAYS, and FCS. Data were stored for later use. The following steps were used for data collection:

1. Recruit participants. Identify potential family members from discussion with the trauma physician, social worker, or nurse manager.
2. Explain the study and procedure to each potential participant and answer any questions they may have.
3. Have informed consent signed and give a copy to each participant for records and key phone numbers.
4. Administer FMDT, STAI, WAYS, and FCS to each participant and answer questions.
5. Collect data, maintain confidentiality, and store.

Rigor

Rigor was maintained through careful construction of the plan and strict adherence to it. Only tools that were tested psychometrically and performed well were used to measure stress and coping.

Subjects had varied ethnicity, race, socioeconomic status, religion, age, and marital status. Subjects were at different phases of their lives and each individual's situation was different, as well as their pre- and post-education phase time. Although it was anticipated all nurses would participate in the EPICS evidence-based intervention, not all nurses were expected

to respond to it in the same way. All these variables were possibly confounding, and results could be skewed due to these issues. Using a power analysis to ensure the ideal number of subjects, educating all nurses within the same unit, and applying tactics used in organizational culture changes, the likelihood of adverse effects related to confounding variables was reduced.

Data Analysis Procedures

Data were entered into Statistical Package for the Social Sciences v. 14 (Chicago, IL) for analysis.[119] Data entry was be performed manually by entering individual test answers into the system. It was reviewed for errors, and any errors were corrected. All data was screened for accuracy, outliers, and missing data. Missing data were handled for the STAI, TRAIT, and WAY by entering the mean value for the variable based on group assignment.

Demographic characteristics were described using frequencies (categorical data) and descriptive statistics (continuous variables). Continuous variables were explored to determine normality. Characteristics of the two groups of family members were tested to assess equivalence using chi-square statistics (categorical data) or independent t-test (continuous variables). Results of the FCS were summarized, and the STAI and WAYS were scored according to authors' instructions.

Hypotheses

The following hypotheses were tested:

1. Implementation of an evidence-based intervention will reduce the stress of family members of critically ill trauma patients.
2. Implementation of an evidence-based intervention will improve the coping skills of family members of critically ill trauma patients.

3. Implementation of an evidence-based intervention will improve SICU family members' perception of needs being met.

Statistical Tests

The hypotheses were tested using one-tailed tests, with alpha level set at .05 for rejecting the null hypotheses. Since assumptions were met, parametric tests were used for continuous level data. T-tests were conducted to analyze continuous data, and chi-square tests were run to analyze categorical data.

Storage and Allocation of Data after Project Completion

All completed forms were kept in a locked box, with the researcher having the only keys. Any information kept in a computer was password-protected. A jump drive was used for backup and portability of information and was kept in the same locked box as the completed forms when not in use.

Summary

A nonequivalent pre-test post-test study was conducted over an eight-month period. The intervention was primarily an educational program for nursing, but culture change within the unit was also addressed. This combination facilitated the actual practice of items learned during the educational phase.

CHAPTER FOUR: RESULTS

Upon completion of the data collection from participants in the post-test group, data were analyzed using the Statistical Package for Social Science v 14 (Chicago, IL). Tables and graphs were developed from generated information for clarity. All data were screened for outliers and none were found. Assumptions related to statistical tests were assessed.

Sample

Family members (n=107) of critically ill trauma patients who met inclusion criteria were approached to participate. Fifteen family members declined the invitation. Ninety-two family members were enrolled, 46 in each group. Packets from eight of the 92 subjects had more than 10% of the items left blank. Data from those participants were discarded, leaving the final sample number at 84: 39 in the control group and 45 in the experimental group. The target sample size was not achieved due to the need to begin the intervention in January and not bias findings by prolonging the pre- and post-test data collection. Figure 5 illustrates the process that resulted in the final count.

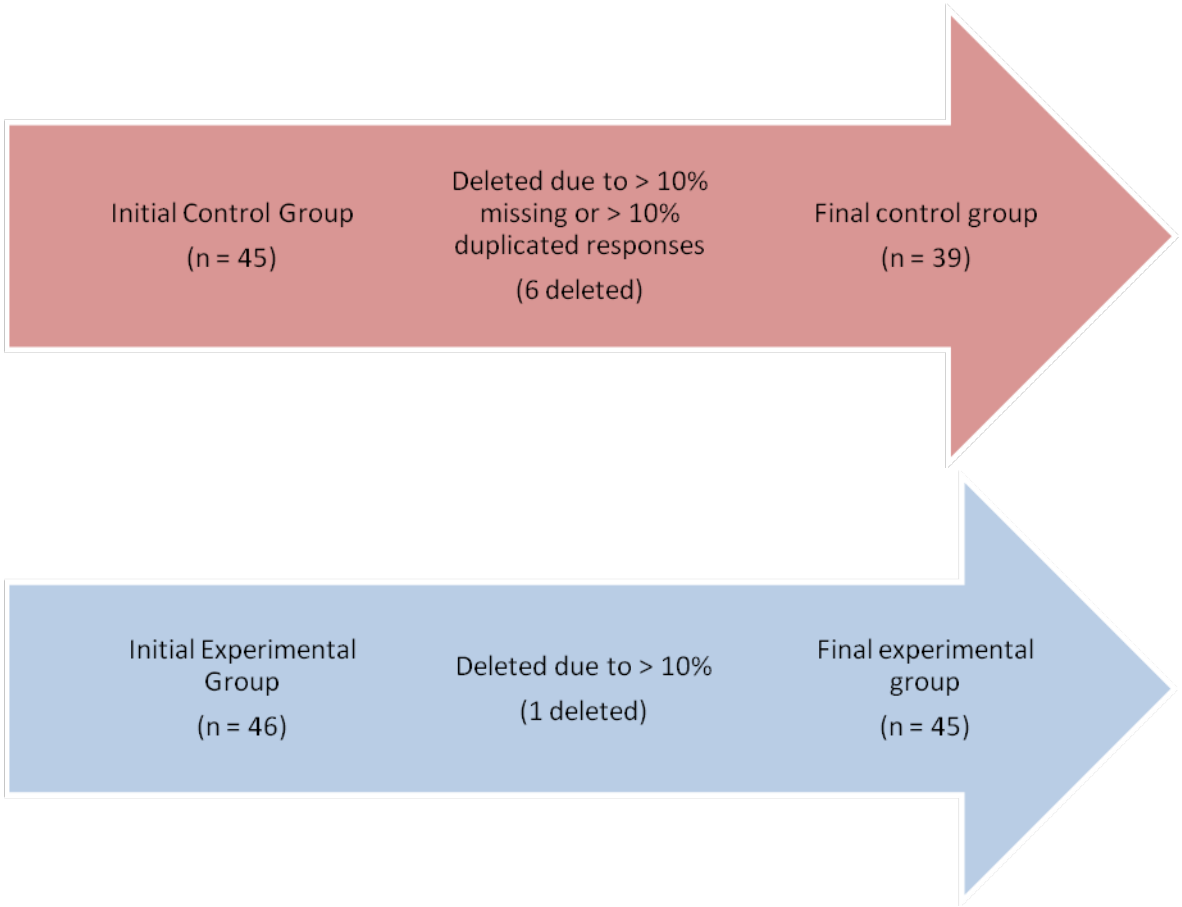

Figure 5. Decision Process for Final Sample Count

Descriptive statistics were computed to explore the data. No differences ($p > .05$) were noted in characteristics of subjects in control and intervention groups. The average participant age for subjects in both groups was similar, with 45.9 years for the control group and 47.4 years for the experimental group. The mean age of the patient was 47.9 for the control group, and 50.3 for the experimental group. The mean length of time since the patient was admitted to the hospital was five days for both groups.

Distribution of length of time since the patient was admitted to the hospital was equivalent, and each group had a participant whose family member had been hospitalized in the SICU for 16 days. Chi-square tests found no significant differences between the two groups ($p>$

.05) on relationship to patient (χ 2 = .532 , df = 4, p = .970), gender (χ 2 = .789, df = 1, p = .375), ethnicity (χ .088= , df = 1, p = .766), and race (χ 2 = 2.30, df = 2, p = .316). An independent sample t-test with equal variances found no significant difference between groups in age of participant (*t* = -.481, df = 82, p = .632) or age of patient (*t* = -.673, df = 82, p = .503). Figures 7 and 8 show the group comparisons according to relationship of patient and race. Plans were to analyze data using demographic variables as co-variates; however, given the congruence of these characteristics across both groups and the small sample size, traditional t-tests and chi-square tests were run without adjusting for demographic characteristics. Table 9 summarizes the demographic data.

Table 9. Demographic Data for Family Member Participants

Demographics	Control n = 39	Experimental n = 45	P = Value
Relationship to patient			.970[a]
Husband/wife	10	13	
Parent	11	13	
Child	10	11	
Brother/sister	6	6	
Significant other/partner	3	2	
Gender			.375[a]
Male	9	14	
Female	30	30	
Missing	0	1	
Ethnicity			.766[a]
Hispanic or Latino	2	3	
Not Hispanic or Latino	37	42	
Race			.316[a]
White	36	38	
Black or African American	1	5	
Other	2	2	
Participant (Family member) age		..	.632[b]
Mean	45.92	47.38	
Range	22-77	19-79	
Patient age			.503[b]
Mean	47.87	50.27	
Range	19-83	21-90	
Patient days in the SICU			.633[b]
Mean	5.18	4.89	
Range	3-16	2-16	

[a]Chi Square test
[b]Independent Samples t-test

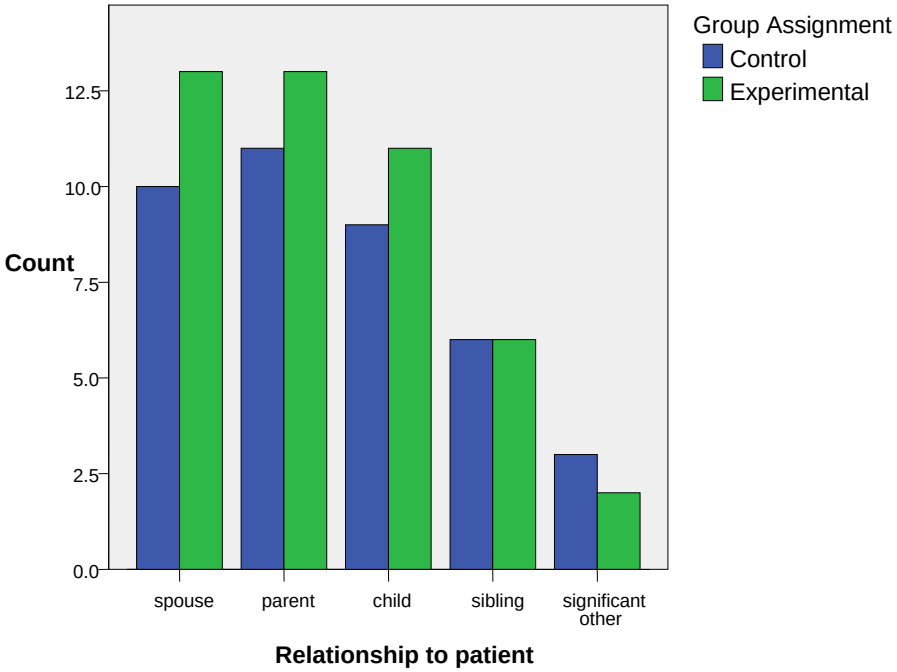

Figure 6. Participant's Relationship to Patient, Comparison between Groups

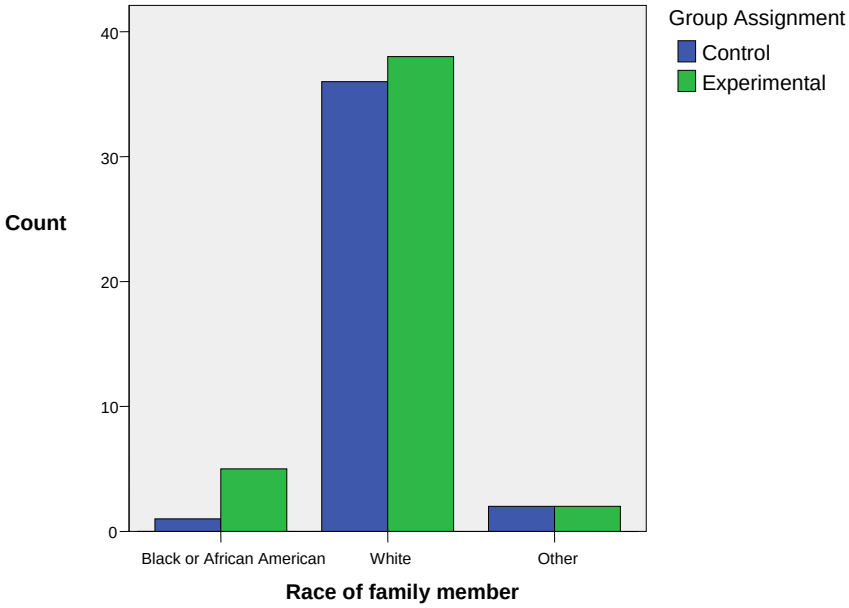

Figure 7. Race of Comparison between Groups

Hypothesis One: Reduction in Stress

Implementation of an evidence-based intervention will reduce the stress of family members of critically ill trauma patients.

Normality was tested using the Kolmonogorov-Smirnov test. Data for both state and trait scores were normally distributed ($p > .05$). Homogeneity of variance was determined using Levine's Test for Equality of Variances. Data were screened for outliers and none were found.

Results of the STAI were evaluated. An independent samples t-test was conducted. Mean scores for state anxiety (STAI Form Y-1) were 54.7 for the control group and 53.7 for the experimental group (p [one-tailed] = .36). Mean scores for trait anxiety (STAI Form Y-2) were 36.3 for the control group and 38.3 for the experimental group ($p = .21$). Table 10 shows the statistics determinate for outcome.

Table 10. Stress in Subsets State and Trait

Subset	**Mean**	**Std. Deviation**	**Min-Max**	***t***	**P (one-tailed)**
State Anxiety (STAI Y-1)				.37	.36
Control group	54.72	13.24	27-78		
Experimental group	53.71	11.62	25-76		
Trait Anxiety (STAI Y-2)				.80	.21
Control group	36.33	10.66	22-62		
Experimental group	38.27	11.30	23-69		

Hypothesis Two: Improvement of Coping Skills

Implementation of an evidence-based intervention will improve the coping skills of family members of critically ill trauma patients.

Results of the WAYS were evaluated in three ways and analyzed with independent sample t-tests: 1) scores computed for eight factors derived from 50 of the total 66 statements, 2) a total score of the 50 statements used to compute the eight factors (WAYS Total 50), and 3) a total score for all 66 items (WAYS Total 66).

Normality was tested using the Kolmonogorov-Smirnov test. Data for the Confrontive Coping, Distancing, and Accepting Responsibility subsets were non-normally distributed; however, they were included in the results because the t-test is robust for non-normal data, provided the sample size is adequate.[120] The WAYS Total 50 and 66 and all other subscales were normally distributed ($p > .05$). Homogenity of variance was determined using Levine's Test for Equality of Variances. Equal variance was assumed for WAYS Total 50 and 66, and all subscales except Self-Controlling and Accepting Responsibility, and p-values are reported accordingly.

No significant differences were noted for the total WAYS score between groups. The WAYS Total 50 had means of 55.04 (SD 18.29) for the control group and 60.24 (SD 21.98) for the experimental group ($p = .123$). WAYS Total 66 had means of 75.23 (SD 23.64) for the control group and 82.33 (SD 26.50) for the experimental group ($p = .101$). Those in the experimental group had significantly higher scores on Distancing and Accepting Responsibility WAYS subsets. No significant differences were noted between groups on the other six subsets of the WAYS tool. However, higher scores were noted in the experimental group for Confrontive Coping, Self-Controlling, Planful Problem Solving, and Positive Reappraisal subsets. Data are summarized in Table 11.

Table 11. Coping, Total Scores, and Subsets

Subset	Mean	Std. Deviation	Min-Max	*T*	p (one-tailed)
Confrontive Coping				-1.374	.087
Control	4.74	3.13	0-12		
Experimental	5.78	3.69	0-16		
Distancing				-2.030	.023
Control	4.00	2.51	0-12		
Experimental	5.27	3.11	0-14		
Self-controlling				-1.459	.075
Control	7.69	4.12	0-15		
Experimental	8.87	3.09	2-16		
Seeking Social Support				.364	.359
Control	10.49	3.94	2-18		
Experimental	10.18	3.83	0-17		
Accepting				-2.578	.006
Responsibility	1.59	2.23	0-8		
Control	3.11	3.15	0-12		
Experimental					
Escape-Avoidance				.166	.435
Control	8.62	4.54	0-20		
Experimental	8.44	4.85	0-20		
Planful Problem Solving				-.115	.454
Control	8.19	3.90	1-16		
Experimental	8.29	3.82	0-17		
Positive Reappraisal				-.552	.291
Control	9.72	4.63	3-21		
Experimental	10.31	5.14	0-20		
Total (50)				-1.169	.123
Control	55.04	18.29	20-100		
Experimental	60.24	21.98	25-115		
Total (66)				-1.287	.101
Control	75.23	23.64	30-132		
Experimental	82.33	26.50	35-146		

Hypothesis Three: Family Members' Perception of Needs Being Met

The FCS evaluated family members' perception of how well their needs were met while their loved ones were hospitalized in the SICU. Some items were left blank by the participants, so the *n* between groups was not consistent. Everyone in the control and experimental groups, except one in each group, were satisfied with the nursing care their loved ones received ($p = .46$). Results indicated a small but non-significant improvement in satisfaction with care provided to the family after the EPICS intervention ($p = .16$). Four participants in the control group, versus one in the experimental group, indicated that their needs were not being met $p = .07$). Although not statistically significant ($p = > .05$), 31% of participants in the control group felt their needs were not being included when the nurses planned care, compared to 18% in the experimental group ($p = .09$). More in the experimental group (21%) than the control group (14%) disagreed they were being informed about their loved one's condition ($p = .19$). Thirty percent of subjects in both groups felt meetings were not being arranged with physicians or other health care providers ($p = .46$). A large percentage of participants (39%, 41 % experimental) did not feel the nurses provided emotional support for them ($p = .43$). Table 12 summarizes findings of the FCS.

Table 12. Family Care Survey Results

Item	Control	Experimental	χ^2	*p* (one-tailed)
Satisfied with nursing care patient received	*n* = 37	*n* = 42	.01	.46
Generally agree	36	41		
No opinion or generally disagree	1	1		
Satisfied with care family members received	*n* = 37	*n* = 42	1.03	.16
Generally agree	33	40		
No opinion or generally disagree	4	2		
Considered my needs as family member	*n* = 36	*n* = 40	2.29	.07
Generally agree	32	39		
No opinion or generally disagree	4	1		
Included those needs in planning care	*n* = 35	*n* = 39	1.82	.09
Generally agree	24	32		
No opinion or generally disagree	11	7		
Encouraged me to participate in care	*n* = 33	*n* = 38	.35	.28
Generally agree	26	32		
No opinion or generally disagree	7	6		
Kept me informed about patient condition	*n* = 36	*n* = 42	.75	.19
Generally agree	31	33		
No opinion or generally disagree	5	9		
Arranged meetings with physicians and others	*n* = 37	*n* = 39	.01	.46
	26	27		
Generally agree	11	12		
No opinion or generally disagree				
Provided emotional support for me	*n* = 36	*n* = 39	.04	.43
Generally agree	22	23		
No opinion or generally disagree	14	16		

df 1

A total of 35 participants took advantage of the option to comment on the FCS: 13 in the control group and 22 in the experimental group. Comments were evaluated on opinion of care in general as negative, positive, or mixed/neutral.

The control group had nine positive, two negative, and three mixed or neutral responses. Positive comments reflect the same satisfaction with nursing care as was indicated by the scale section of the FCS. Examples are, “We are so grateful for the nurses!” “They have all been great to both my son and our family…going above and beyond what they can to help him and his healing process…” One person said, “…the nurses are…compassionate and caring…if this had to happen, I’m glad it happened here…” Negative comments were primarily about a lack of communication, especially with physicians. For example, “...No communication except a phone call after brain surgery…Day five no contact...very upset about this…” Some had mixed feelings “…My son has gotten the best care from this hospital and staff except two young girls…I don’t think either one of them should be in this unit…”

Participants in the experimental group’s comments were evaluated the same way. There were twelve positive comments, four negative, and six mixed or neutral. Nurses and/or staff were described as “exceptional,” “helpful,” and “compassionate.” A comment was, “Nurses answered all the questions I asked and were very compassionate.” One person was very satisfied with care received by staff, but was dissatisfied when a planned meeting with a “head doctor” did not occur. Another family member expressed a feeling of being “bewildered, overwhelmed, unsupported,” but also said the staff was very kind. Table 13 summarizes the comments.

Table 13. Comments of Family Members from FCS

Control	
Positive	The nurses are absolutely amazing! Compassionate and caring. Communicate much better than the doctors. If this had to happen, I'm glad it happened here because of the nursing staff. Keep up the great work. So far, (hospital) and the staff here are the greatest. The nursing staff has been wonderful to my mom in the ICU! They have all been great to both my son (name and room number) and our family. And I know they are doing and going above and beyond what they can to help him and his healing process. Thank you all. (name of mother) We are so grateful for the nurses! Thanks to everyone in Pod 5 in the SICU! Acknowledgment of our situation with our loved one truly helps in the "trust" factor. Having the RN know all about or asking about my loved one makes them a person more than a patient. Thank you for allowing me to help with survey. The nurses in ICU have been awesome!
Negative	The neurological surgeon had no communication with us except a phone call after brain surgery. This is Day 5 and we have had no contact with the surgeon. Very upset about this. The nurses were not friendly at all. No one including the doctors keep me informed about everything. I think (hospital) is a really crappy hospital. I think (other hospital) is a lot better. The nurse and doctors here don't care about the family and need to be fired. Overall, I would not bring a dog or cat here.

Control		
	Mixed/Neutral	My son as gotten the best care from this hospital and staff except for two young girls, one a trainee that I think neither one of them should be in this unit. I just thank God he will be coming home with me. This hospital needs to learn that family members are important and they need to take time for them. The nurse are very good but doctors seem too busy—either they are chasing the female nurses or are too busy teaching. They need to realize we are worried and scared and come sit down and tell us what is going on—take time for them. I am very disappointed with them. Thank you.
Experimental		
	Positive	The nursing staff and doctors are very caring helpful. For once we had a staff who could answer all our questions in a professional and timely manner, were kind, sympathetic, and as a daughter, it lifts a ton of pressure knowing that she is getting good care! All the nurses and physicians and staff at (hospital) have been exceptional. Thanks. Good team, great support group. When I asked for [as much] info as I could get, I did get more. Generally, not much info was "offered." Everyone was very helpful when approached them. Thank you! Hope this helps someone else and please know that I appreciate everything (hospital) has done so far! (Nurse's name) and (nurse's name) in SICU Pod C are exceptional. I have been amazed by the entire staff at Shands. I can go home, knowing that my son is being well taken care of. That is a great comfort. Thank you, God bless you all! The staff have done a great job with my mother. They had provided the best care we could expect. Thanks a lot for the

Control	
	wonderful care. (signed) Nurses answered all the questions I asked and were very compassionate! I know what RN really stands for when you ask about (three nurses' names). REAL NICE. I could not have picked three greater ladies to take care of my loved one and our family. Thank God for these ladies. The entire staff at Shands has made this situation as pleasant as can be. They are very professional and well educated and I could not be happier. Thanks. Nurses are very helpful and courteous. So far, care has been excellent.
Negative	Need to be updated better on patient either on phone "not just saying stable" or in person when they "doctors" do something and just walk away to leave nurse to try to explain to family members. Had to contact charge nurse (nurse manager's name) in order to have questions answered. Husband came in on Tuesday and it was Friday before we got any answers from neurosurgeon. Father came in on Tuesday, Trauma Center and Family. Saw lots of attending physicians and nurses but was never told things because neurosurgeon was the person who had all the answers. After becoming upset and getting to speak with charge nurses, the neurosurgeon was finally spoken with on Friday.
Mixed/Neutral	It is a bit disconcerting when physicians ask family members when the patient last took a particular dose of medication while in the hospital. I am very satisfied with the care (patient) has received by the staff. There was a situation though that I was told we would be able to talk to the head doctor and he went home before he was notified by the nurses. Also since my fiancé is in the ICU the

Control	
	person at the front desk, (name), is not very accepting to being empathetic to the family members. The doctors and nursing staff have been wonderful. But one of the receptionists at the "gate keeper" desk was unkind, uncaring, and added stress to the situation—everyone else was awesome. Nurses are kind and friendly. It has been hard for our family to get any straight answers. It feels like one person will say he's getting better, then the next person will imply just the opposite! It's very frustrating. #2 (satisfied with care family members received): for the most part, except for a few nurses. #7 (arranged meetings with physicians or other health care providers): yes but didn't keep the meeting or never contacted me! Continuity of nurses and doctors is lacking. I never knew who to ask for or when to meet them. Very laissez-faire. Various staff members wanted my time and attention handing me reading materials or surveys to answer. One contact person would have allowed me to coordinate my questions and concerns. Overall I felt bewildered, overwhelmed, and unsupported. The staff was very kind and competent, though, and prepared SSDI interview for me. But no one told me that it had been done so I again was confused. Board listings of staff were not updated or accurate. Cannot answer the above questions because I have not had enough time to observe. I have only had 30 minutes to observe.

Summary

Findings from the study were summarized and are discussed in the following chapter.

CHAPTER FIVE: DISCUSSION

This chapter discusses the findings of the study as they relate to the hypotheses. The relationship of findings to previous research is also presented.

Hypothesis One: Reduction in Stress and Anxiety

The mean for state anxiety was slightly less for the experimental group than the control group, but not statistically significant (p = >.05, one-tailed). The trait anxiety mean was greater with the experimental group. State anxiety is transitory, "right now, at this moment," and trait anxiety is relatively stable; for example, how people generally feel.[109] It is therefore reasonable to expect that since nurses had the EPICS family bundle to assist them in decision-making regarding family members, family members would feel less state anxiety after the intervention was introduced. The sample size was not as large as planned, so it is likely the power was not enough for the results to be significant. This will be discussed further under Implications for Research.

Admission to the trauma unit is a stressor. Since stress is high, emotions are intense, and a multitude of stressors impact family members, it is not unreasonable that the intervention resulted in little change in family stress.[4, 15, 36, 37, 70] Hospitalization of a loved one in an intensive care unit has been associated with Acute Stress Disorder.[6] Due to the unexpected, intense, and critical nature associated with traumatic injury, it may be difficult to impact the stress response through a family bundle. Greater impact may be associated with stronger, more time-sensitive interventions to assist the family members' coping with the stressors, thus decreasing stress levels during secondary appraisal.

Previous research studies on interventions designed at meeting family needs, decreasing stress, or improving coping have been successful. In Hong Kong, when an educational program for family members used a three-page pamphlet and one nurse to deliver information, needs were met and anxiety decreased for the experimental group.[121] When mothers of pediatric critically ill patients were provided with an educational-behavioral program that included knowledge and participation in patient care, stress decreased.[91] Family members who provided oral care to their family members in a cardio-thoracic intensive care unit were 62% less stressed after their participation in care than before.[93]

Research on interventions that are intended to assist families are almost all related to providing information. The comments made by five participants in this study about a lack of communication or information may provide insight on why stress was not reduced in this study as it was in other studies with interventions intended to decrease stress. Other reasons for the differences may be in studying family members of patients with traumatic injury who have the potential for uncertain outcomes.

The EPICS family bundle is designed to cover more than informational needs, and the changes in stress resulting from implementation may be more subtle. Previous research focused on providing information and then studying whether information needs were met. The current study was more comprehensive. Further, the study was directed at nurses, but nurses are not the only health care providers who provide information to patients and their families.

Hypothesis Two: Improvement in Coping Skills

Distancing and Accepting Responsibility subsets were statistically significant between the two groups, with higher scores in the experimental group. Distancing is defined as “cognitive

efforts to detach oneself and to minimize the significance of the situation." [117(p7)] According to Lazarus and Folkman, when a loved one's well-being is threatened, individuals draw more on specific coping skills that include distancing.[117] Some family members discuss tactics that mirror distancing. Plowfield discovered that some family members stay at the hospital constantly, while others use the tactic of staying busy.[13] Not all family members cope by being present all the time. Those that do may be distancing themselves emotionally rather than physically. For example, if family members received the information they needed, it is possible this helped them with distancing by allowing their focus to become more on the health care plan of the patient than the injury itself.

Accepting Responsibility is defined as "acknowledges one's own role in the problem with a concomitant theme of trying to put things right."[117(p7)] Family members want information, and by providing it while involving them in care of their loved ones, nurses promote family members as having specific roles rather than simply being bystanders.[20, 43, 53, 54] This promotes an acceptance of responsibility, which is a coping mechanism in itself. Family members experience a sense of control and assume responsibility when they receive continuous information.[53, 54] Most families want information. Many want to participate in care. It is therefore reasonable that the EPICS family bundle would have a significant impact on Accepting Responsibility.

Although not statistically significant, means were higher for the experimental group in both WAYS Total 50 and WAYS Total 66. A trend of improvement in coping skills was evident for the experimental group for all subsets except Seeking Social Support and Escape/Avoidance.

The sample size calculated by power analysis was projected to be 56 in each group. Due to difficulty reaching qualifying family members, the goal was not reached. Having a lower sample size resulted in less power and therefore less significant results. However, since six

subsets and the two totaled WAYS showed in improvement in family members' coping skills after the intervention, trends indicate the intervention was successful. This finding supports Lazarus and Folkman's Transactional Model of Stress and Coping.[28] Through implementation of a program provided to nurses that facilitates individually planned actions to fill family needs, nurses are able to help family members adjust their views of the stressor at the time of primary appraisal. This results in a reappraisal of the stressor, which enables the family members to better cope with their experiences at the level of secondary appraisal.[28] An example would be the family member who first comes to the bedside just after learning a loved one is critically ill. The family member likely experiences some of the problems discussed earlier: high levels of stress, fear, intense emotions, and "roller-coaster"-like feelings.[2, 4, 35, 37] Following the concepts of the EPICS family bundle, the patient's nurse can evaluate the family, both as a group and individually, and plan accordingly. The family can be involved in patient care both on a family level and individually, based on the evaluation and planning. The nurse can ensure communication is adequate by providing the family with information as needed, based on previous evaluation and planning, and facilitating meetings with other health care providers. Lastly, the nurse can provide support in a variety of ways that actually include the previous four EPICS concepts. By doing all these things, needs are met. Stress is now handled better through improved coping, which results in decreased stress on secondary appraisal.

Past research has also found that family members who were present during the resuscitation of a loved one were better able to cope with the situation than those who were escorted to the waiting room when a loved one required resuscitation.[89] The family member who is present during resuscitation actually sees what is happening. Information, comfort, and support

are provided. Likewise, the EPIC family bundle is designed to help family members cope by providing information, comfort, and support.

Hypothesis Three: Family Members' Perception of Needs Being Met

No statistically significant findings were noted between groups on the FCS; however, some trends in improved perceptions were noted in the experimental group. The experimental group had a higher percentage responding, "generally agree" to four of eight items: satisfied with care family members received, considered my needs as family member, included those needs in planning care, and encouraged me to participate in care.

Increased agreement of needs being met after the EPICS intervention is supported by previous research. For example, family members at an intensive care unit in the Midwestern United States routinely received information within 24 hours of their loved ones' admissions, along with an informational pamphlet and a daily telephone call. They made fewer incoming telephone calls to the unit than the control group. They were more satisfied with care, and perceived their needs as being met.[77] Family members in a Hong Kong intensive care unit said their needs were met when they were provided with an educational program.[121] This finding corresponds with the groundbreaking findings of Molter and research that followed: families need information, and they want to have questions answered honestly. They want to know why specific things were done for the patient.[21, 36, 54]

The trend implies increased satisfaction in areas involving family care and family member needs (including needs in planning care), as well as being encouraged to participate in care. It is reasonable there would be little or no difference between groups in satisfaction with patient care since the intervention targeted family members, not patients. Interestingly, however,

family members in the experimental group felt less satisfied regarding being informed about patient condition, having meetings arranged with physicians and other health care providers, and emotional support than the control group. Being informed about the patient's condition and arranging meetings with physicians and other health care providers are related; so if physicians were not meeting family needs, it is reasonable that satisfaction would be less in these areas. It does not explain, though, why it would be lower in the experimental group for these two items or for emotional support for the family member. The research site was a teaching hospital with rotating resident physicians. Possibly the physicians who were present during phase three were not as adept at providing information and organizing family meetings as those who were present during phase one. The nursing staff changed some, but maintained the same core staff nurses and same leaders.

Family members' comments were consistent with the items on the FCS. A total of 25 of the 35 comments between the two groups were positive. Most negative comments were related to information and communication, and specifically involved communication (or a lack of it) with physicians. Despite how much effort nurses put into meeting these informational needs, if the physicians did not provide the needed information, the needs were not met. There were more positive comments than negative in both groups

Limitations

Data Collection

Difficulty was met when gathering data. Plans to recruit someone with access to patients' medical charts, who would obtain permission from the family member to be approached, were not effective. The social worker, trauma attending physicians, and nurse manager, who were

listed in the research proposal as likely to help and who were all willing to assist, were usually not at the bedside when the family was present. A frequent occurrence was for a patient to be determined eligible, family to be present, but no one eligible to obtain consent was available.

Staff nurses were at the bedside and had access to the patients' charts. Many were willing to assist with recruitment. However, if the nurses knew the details of the study, it could have affected their nursing care and influenced the results of the study. For this reason, it was important the nurses not be aware of what was being tested. Therefore, care was given to prevent nursing staff from being aware of the educational intervention while protecting their rights. They were aware of the educational program, and they knew that the research was approved by the IRB, but they did not know how the research was being conducted. Nurses who were willing to assist and had a good rapport with their patients' families were used to recruit family members.

The unit census was low during much of phase one. The number of trauma patients is never completely predictable and can fluctuate greatly from one period to another. It is possible there was a large number of trauma patients in the hospital, but the acuity of traumatic injuries determines whether patients go to the SICU or the trauma unit. During the time of data collection, it is possible most of the trauma patients were less acute and therefore in the trauma unit rather than the SICU.

Although most family members were eager to participate in research that would potentially help families in the future, 15 declined, thus limiting the sample size. Some would agree to participate, but then decline after they were given the informed consent form. The consent form was made from the template required by the IRB. It is used for all types of research at that institution, whether biomedical or psychological. It is possible the wording concerned some potential participants and resulted in skepticism, although when a family member read the

informed consent form, either the PI or a designee was always present to answer questions. At least two potential candidates refused because they felt “too stressed” to participate.

Educational Intervention

Challenges were experienced as the EPICS family bundle was introduced to the nursing staff. A large number of nurses resisted and may have influenced others. When approached by the researcher or co-champions, many nurses would speak of the EPICS family bundle positively. Some gave experiences on how they used the bundle. Others asked questions, wanting clarification, or made suggestions. But when approached as a group, nurses did not participate in the discussions.

In addition, the intranet program was intended for all nurses to view, but this did not occur. Staff was initially told by management that the intranet program was mandatory, but several weeks into the program, the statement was retracted. The intranet program contained the foundation of the EPICS family bundle: evidence-based information including family needs, appropriate interventions, theories of stress and coping and family systems, and references. In-services, one-on-one training, posters, bulletins, and other educational items were intended to supplement the intranet program. Materials were already created at this time. It was too late to change the structure of the program, so some of its strength was lost. At the end of the intervention, 38 out of 120 SICU staff nurses had actually completed the program. At the time the research was concluded, 52 had completed the program.[122] This could have influenced the outcome. However, in retrospect, perhaps offering the program in several ways, such as booklet form, oral presentation, or intranet, would have been more beneficial.

In addition, education alone is not adequate for promoting a change within a nursing unit. This was recognized by the researcher, and this is why the literature review included culture changes within an organization. However, although five concepts adopted by organizations with successful culture changes were used as a part of the EPICS intervention, there was not enough time allotted for an actual culture change.[102] Kotter and Heskett found it takes four to 11 years for an organizational culture change to occur.[123] This amount of time could not have been allotted, as too many extraneous variables would have emerged, weakening the study.

Different Times

Phase one and phase three were conducted at different times. Although extraneous variables were controlled as much as possible, there were circumstances that ranged in level from individual to global, which could impact the stress experienced by the family members. Events such as the birth of a child, a job change, a death in the family, or a marriage affect families both on the individual and the unit level. These events, although positive, alter the family life cycle and cause stress.[48] These types of data were not obtained on the demographic information tool.

Implications for Education and Practice

The first five items in the FCS primarily reflect the EPICS concepts *evaluate, plan, and involve*. The last three reflect the concepts *communicate* and *support*. Since the items reflecting communication and support had the lowest satisfaction rates among groups, it may indicate a need to pay particular attention to these two concepts when planning future EPICS family bundle educational programs.

This study provided valuable information on family-centered care, a topic important to holistic nursing that has received little attention. A firm foundation of information on how to meet needs, decrease stress, and improve coping skills of families has been laid through this study, and it will promote evidence-based practice in the critical care setting.

This foundation can also be expanded to other areas, such as emergency, rehabilitative services, or cardiovascular intensive care. The end of life of a loved one is especially difficult for family members to manage in any setting. The EPICS family bundle can be used to assist families who have loved ones at the end of life by giving the bedside nurse the structure needed to ensure families are evaluated, included in planning care, involved in the care of their dying loved ones, and supported. It can be also used in conjunction with family presence during resuscitation or invasive procedures. Many nurses are reluctant to embrace these concepts because of the stress, possible negative effects on the performance of the team, and possible interference with procedures because the family requires attention.[124-126] With the EPICS family bundle, there is structure for the nurse to rely on to ensure the best care is provided for families in a way that is most efficient.

In practice, the educational program could be implemented over a period of weeks as staff development, as it was in this research. Another possibility is to introduce the EPICS family bundle to newly hired nurses as a part of their orientation. It provides structure for a concept that promotes holistic family-centered nursing by including families as a part of patient care planning, providing information, encouraging involvement in the care of their loved ones, and being supportive. By meeting family needs, family members will be better able to cope with the stress they experience.

Since a culture change is required for the program to succeed, a change in beliefs is necessary. Collaboration with other efforts to promote family-centered care in the critical care setting, such as *The Clinical Practice Guidelines for Support of the Family in the Patient-Centered Intensive Care Unit* and The CHEST Critical Care Family Assistance Program, would facilitate a multidisciplinary approach to family centered-care.[82, 86] Committees that incorporate these efforts along with EPICS could be formed to include staff nurses who have been mentored by someone proficient in family-centered care, or who have been assisted by a family care specialist[74].

Hospitals that incorporate shared governance should welcome a structured plan that can involve all staff in its efforts to promote family-centered care. Coupled with managerial support, the EPICS family bundle can be introduced and accepted by staff.

Implications for Research

Extensive research has been conducted on needs of families of the critically ill, but less research exists on stress and coping of these families. This study provides a basis for further research to test the effectiveness of targeted family interventions on family stress, coping, and meeting needs

Cultural Diversity

Only ten of the 84 participants, or 12%, were a race other than white. The research site is located in a county that has 17% non-white population.[127] This finding is likely related to the demographic characteristics of the hospital's service area, which includes the surrounding 11 counties. Also, it was required that the participant be able to read English, and this could be why there is a disparity between the county statistics and the actual participation in the study.

Replicating the study in a setting with a more diverse patient/family population is important. It should be noted, though, that people of different cultures and races vary in how they perceive, experience, and cope with stress, so studying the differences in response to the EPICS family bundle between them would be beneficial for the promotion of multicultural diversity for families within the health care setting.[128-130] Since the first component of EPICS is *evaluate*, the family or family member's cultural needs is one of the first things the nurse should acknowledge.

This research was aimed at assisting individual family members while considering the family system. However, future research could be conducted on how EPICS affects entire family systems. Knowing how family members of different ages respond to the bundle would help nurses expand and adapt their interpretations of the five EPICS concepts to best assist family members of varying ages. Possible research questions are: What is the difference in response to and evidence-based intervention between Latino and African-American family systems? Does the EPICS family bundle decrease stress and improve coping skills for families of choice? What is the multicultural family members' perception of the EPICS family bundle? What age group benefits the most from the EPICS family bundle?

Organizational

Although the study incorporated research findings of successful organizational culture changes in the educational program, it was not the focus of the research. It may be beneficial to research the EPICS educational intervention in conjunction with an organizational culture change when there is more time available. Health care centers vary greatly by organizational culture, location, type of facility (such as community hospital vs. university teaching hospital), type of unit (such as surgical, medical intensive, and cardiovascular intensive care), and physical

setting (urban vs. rural). These and other similar types of settings could be studied individually and as a large group and then compared. It may also be beneficial to understand how EPICS is received in a Magnet® hospital as compared to a facility that has not obtained Magnet® status. Possible research questions are: Does the EPICS family bundle decrease stress and improve coping more in an urban teaching hospital than a rural community hospital? Do nurses at a Magnet® hospital use the EPICS family bundle more effectively than at a hospital without Magnet® status? Do families of medical intensive care patients experience less stress and improved coping than cardiovascular intensive care patients' families?

Hospitals vary in how they incorporate state regulations that are required for maintaining level one trauma center status. It would be interesting to see how EPICS is received at a variety of settings that are all under the same regulatory sanctions, since they all interpret and incorporate the regulations individually.

Non-nursing Disciplines

The EPICS family bundle in this research was tested in a critical care setting by including education of staff nurses as the foundation for implementation of a practice change. Future research could include other disciplines, such as physicians, social workers, chaplains, and respiratory therapists. The responses of the different disciplines as a group could be compared to those of nurses. Individual disciplines could be compared for responses. Possible research questions include: Is the perception of the EPICS evidence-based intervention received better by physicians, nurses, or respiratory therapists? Does physicians' communication with families improve after receiving education on the EPICs family bundle? This is of particular interest, since all negative comments made by family members on the FCS were directed at

communication with physicians. Only one of the five comments mentioned nurses at all, and it was directed at "the doctors and the nurses."

EPICS Combined with Other Programs

Research has been conducted on families by many disciplines of health care. Nurses can benefit by learning from other disciplines that also work with families but may have a different perspective. By combining the efforts of all disciplines, the broadest and most thorough coverage can ensure the best practices. The Society for Critical Care Medicine's *Clinical Practice Guidelines for Support of the Family in the Patient-Centered Intensive Care Unit* is a detailed report with recommendations for practice.[82] CHEST's Critical Care Family Assistance Program has objectives that reveal intent to provide family support and information in a structured way.[86] The EPICS family bundle can compliment both programs by providing the structure for developing the needed tools.

Implications for Health Care Policy

This research was conducted with families of trauma patients. These patients and their families experience many evolving changes, both during and after hospitalization. Trauma services are regulated and funded by government agencies. Some trauma patients require rehabilitation or medical care after leaving the hospital, necessitating further assistance by local agencies. Increased use of these agencies results in more government spending and requires more personnel. Families who are able to cope are better able to provide assistance to their loved ones, potentially decreasing demands on the agencies.

Disabilities frequently mean displaced workers and financial problems within the family. Government provisions such as Social Security, Worker's Compensation, and Medicaid are

available for patients and their families, but their use results in more government spending. In 2002, 161.5 billion U.S. dollars were spent on Medicaid and the State Children's Insurance Health Program; Medicare accounted for 187.7 dollars, and Workers' Compensation accounted for 29.8 billion dollars.[131] The Florida Brain and Spinal Cord Injury Program, which is in place to help rehabilitate Florida's brain and spinal cord injury patients, spent $27,250,109 in 2008. If families are supported prior to and after hospital discharge, there may be fewer government dollars spent.

The EPICS family bundle could also be used outside of the health care facility setting in the homes of discharged patients. The EPICS concepts could be used to model care given to these families to promote a continuation of decreased stress, improved coping, and having needs met. In this way, the EPICS family bundle could be used in the community setting. With improved coping, family members will be better caregivers. Those that experience "caregiver stress" are in distress, and may need respite care or community-based family therapy.[132] Global stress-managing strategies are needed for these caregivers.[133] Using the EPICS family bundle, caregivers can be provided with the support needed to prevent the problem. The bundle could be included in Medicare home visits to ensure the patient and family are having their needs met. .

Summary

This study evaluated whether or not the EPICS intervention would decrease stress, improve coping skills, and improve perception of family-centered nursing care of families of critically ill trauma patients. Stress, as measured by state anxiety, was reduced after the intervention, but was not statistically significant. Family coping on two subsets—Distancing and Accepting Responsibility—were significantly improved after implementation of the EPICS

bundle. Although the decrease in anxiety and improvement in coping were statistically significant in only two subsets, overall trends of decreased stress and improved coping are encouraging. Significance can be improved through future expansions of this study through increasing sample size and power, strengthening the educational program, culture change approach and intervention, and allowing more time for the study. It is hoped this research will be taken to a larger level that will bring about favorable change for nurses and families of the critically ill.

APPENDIX A: IRB APPROVAL

UF Institutional Review Board
UNIVERSITY of FLORIDA

Health Center Institutional Review Board
FWA00005790

PO Box 100173
Gainesville, Florida 32610-0173
Tel: (352) 846-1494
Fax: (352) 846-1497

MEMORANDUM

DATE: August 11, 2008

TO: Sandra Knapp, MS/MA
4839 Gopher Circle
Middleburg, FL 32068

FROM: Richard E. Neiberger, M.D., Ph.D.
Vice Chairman, IRB - 01

R. Neiberger MD

EXPIRES: Saturday, July 11, 2009

SUBJECT: EXPEDITED IRB #340-2008

TITLE: EXPEDITED: THE EFFECTS OF AN EVIDENCE-BASED INTERVENTION ON STRESS AND COPING OF FAMILIES OF CRITICALLY ILL TRAUMA PATEINTS

You have received IRB approval to conduct the above-listed research study. Approval of this study was granted on July 15, 2008. Enclosed is the dated, IRB-approved Informed Consent Form that must be used for enrolling subjects into this project from July 15, 2008 through July 10, 2009. This study is approved as expedited as it poses minimal risk and is approved under the following expedited category/categories:

Expedited #7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. Note: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR § 46.101(b) (2) and (b)(3). This listing refers only to research that is not exempt.

You are responsible for applying for renewal of this study prior to the expiration date. Re-approval of this study must be granted before the expiration date, or the study will automatically be suspended. If suspended, new subject accrual must stop. Research interventions must also stop unless there is a concern for the safety or well-being of the subjects. You MUST respond to the Continuing Review questions within 90 days or your study will be referred to the Board for termination.

The IRB has approved exactly what was submitted. Any change in the research, no matter how minor, may not be initiated without IRB review and approval, except where necessary to eliminate hazards to human subjects. If a change is required due to a potential hazard, that change must be promptly reported to the IRB.

If applicable, only a qualified clinician may be responsible for study-related healthcare decisions.

Any severe and unanticipated side effects or problems and all deviations from federal, state, university, or IRB regulations must be reported, in writing, within 5 working days.

Upon completion of the study, you are REQUIRED to submit a summary of the study and a Study Closure report to the IRB office.

Research records must be retained for 3 years after completion of the research; if the study involves medical treatment, it is recommended that the records be retained for 8 years.

If VAMC patients will be included in this study, or if the study is to be conducted in part on VA premises or performed by a VA employee during VA-compensated time, review by the VA Subcommittee for Clinical Investigations is required.

You are responsible for notifying all parties about the approval of this study, including your co-Investigators and Department Chair. If you have any questions, please telephone the IRB-01 office at (352) 846-1494.

cc: IRB file / VA Research Center / Clinical Research Center

Ms. Ward:

I was informed yesterday that UF will agree to the IRB Authorization Agreement and allow UCF to rely on UF IRB-01 for oversight of this project. Send the form to:

Robert Vomacka
University of Florida
Institutional Review Board
Box 100173
Gainesville, FL 32610

-Michael Mahoney
IRB-01 Coordinator

-----Original Message-----
From: Barbara Ward [mailto:bkward@mail.ucf.edu]
Sent: Tuesday, June 24, 2008 1:28 PM
To: mmahoney@ufl.edu
Subject: Fwd: Re: Draft UofF Consent

Mr. Mahoney,
We have a nursing grad student who is working on completing your IRB submission application for a study which will involve family members of patients in ICU at Shands. Mary Lou Sole is her faculty advisor. She is working with Linda Falon at UF. They are preparing a consent form using your UF template and removing the HIPAA Authorization language since they will not use medical records.

Instead of the student submitting to both IRBs, would you be agreeable to UCF relying upon UF IRB#1 as IRB of Record. I can complete the IRB Authorization form and make it study specific. If okay, who is your signatory official? I could mail the form to you to get the signature. Thanks.

IRB electronic submission iris is up and running at https://iris.research.ucf.edu/ IRB info at www.research.ucf.edu/Compliance/irb.html

Barbara Ward, BS, CIM
UCF IRB Coordinator
Office of Research and Commercialization
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Fax: 407-823-3299
Campus mail: Office of Research and Commercialization
32816-0150

APPENDIX B: FAMILY MEMBER DEMOGRAPHICS TOOL (FMDT)

Family Member Information

Please complete the following information as it applies to you by circling the correct answer or filling in the blank. To maintain confidentiality, do not put your name on this sheet. Answers are used for informational purposes only. The care of your loved one will not be affected by your answers.

1. What is your relationship to the patient?
    a. husband/wife
    b. parent
    c. child
    d. brother/sister
    e. significant other/partner

2. How many days has your family member been in the SICU?

    _____days

3. Are you male or female?
    a. male
    b. female

4. What is your age?

    _____years

5. What is the age of your family member?

    _____years

6. Which of the following describes your ethnicity?
    a. Hispanic or Latino
    b. Not Hispanic or Latino

7. Which of the following describes your race?
    a. American Indian or Alaska Native Asian
    b. Black or African American
    c. Native Hawaiian or other Pacific Islander
    d. White
    e. Other

8. Are you able to read this questionnaire without assistance?
    a. yes
    b. no

APPENDIX C: SAMPLE STATE-TRAIT ANXIETY INVENTORY

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel calm……	O	O	O	O
2. I feel secure……	O	O	O	O
3. I am tense……	O	O	O	O
4. I feel strained……	O	O	O	O
5. I feel at ease……	O	O	O	O

APPENDIX D: SAMPLE WAYS OF COPING QUESTIONNAIRE

0 = Does not apply or not used 1 = Used somewhat 2 = Used quite a bit 3 = Used a great deal

1. I just concentrated on what I had to do next – the next step……	0	1	2	3
2. I tried to analyze the problem in order to understand it better……	0	1	2	3
3. I turned to work or another activity to take my mind off things……	0	1	2	3
4. I felt that time would have made a difference – the only thing was to wait……	0	1	2	3
5. I bargained or compromised to get something positive from the situation……	0	1	2	3

APPENDIX E: FAMILY CARE SURVEY

Family Care Survey

Please place a check in the column beside each statement that most closely matches your support while your family member is hospitalized, from 1 "strongly disagree" to 5 "strongly agree," or "not applicable."	Strongly disagree 1	Disagree 2	No opinion 3	Agree 4	Strongly agree 5	Not applicable 6
1. I am satisfied with the nursing care my family member (patient) has received.						
2. I am satisfied with the care that my family members and I have received from the nurses						
Overall, the nurses caring for my hospitalized family member have:						
3. Considered my needs as a family member.						
4. Included those needs in planning care.						
5. Encouraged me to participate in care of my hospitalized family member.						
6. Kept me informed about my family member's care and condition.						
7. Arranged meetings with physicians or other health care providers.						
8. Provided emotional support for me.						
Additional Comments:						

APPENDIX F: EPICS: HOW HELPING FAMILIES HELPS EVERYONE

EPICS—How Helping Families Benefits Everyone

And How to Make It Work

1. Objectives: Upon completion of this course, the learner will be able to:
    a. List basic needs of families of critically ill trauma patients.
    b. Explain the relationship between needs and stressors.
    c. Identify the concepts of family systems theories and how they relate to families of the critically ill.
    d. Identify the components of Lazarus and Folkman's Transactional Model of Stress and Adaptation and how it relates to families of critically ill trauma patients.
    e. Implement the EPICS Family Bundle.
2. Family Stress
    a. Stress is extraordinarily high
    b. Besides the trauma, stressful stimuli include things such as:
        i. Role changes
        ii. Financial concerns
        iii. Isolation from other family members
        iv. Disrupted routines
        v. Unfamiliarity of the critical care environment
        vi. Uncertainty
        vii. Lack of control
        viii. Disorganization
3. Problems Related to Family Stress
    a. Direct consequences:
        i. Physiologic
            1. Upset stomach, aches and pains
            2. Difficulty understanding and/or
            3. Retaining information
        ii. Psychological
            1. Exacerbates previously existing problems
                a. Alcoholic family member
                b. Divorce
                c. Etc.
            2. More difficult to handle current problems
        iii. It affects the patient
            1. Patients fare better when the family is not stressed.
        iv. It decreases patient and family satisfaction
        v. It increases the workload of nursing staff
4. The Relationship Between Stressors and Needs
    a. The greater the stressor, the greater the needs of families.
    b. The greater the family demands, the more assistance is needed.
    c. The nature of a traumatic injury incurs great stress; hence, needs are great.
    d. Under these circumstances, coping skills are only "slightly effective."
    e. Skilled nursing assistance is necessary to help families.

5. Strategies Recommended to help families
    a. Changing visitation to accommodate needs
    b. Arranging communication between family and physicians
    c. Setting up specific ways to communicate between nursing and families
    d. Including families in multidisciplinary meetings
    e. Performing simple tasks (such as oral care)
6. Gap between research and practice
    a. Research indicates families need assistance and provides insight on what nurses need to do to help
    b. Nurses are aware of research findings
    c. Generally, nurses are not practicing what research dictates in this area
7. Why not?
8. Why?
9. Barriers to critical care nurses' assisting families
    a. Time
        i. We are, after all, in the midst of a nursing shortage
        ii. Tasks are overwhelmingly time consuming
        iii. Nurses already have many tasks to accomplish, and helping families may be viewed as "one more thing to do"
    b. Control issues
        i. Nurse:
            1. "Family is invading my territory"
            2. Culture of the unit
        ii. Family: "Nurse is making things difficult"
    c. Lack of understanding how to help families
        i. Education on family care is limited and inconsistent
        ii. Many nurses don't feel equipped to handle families
10. Think about this…Other nursing responsibilities have a protocol, pathway, or "bundle"
    a. Protocols
        i. ACLS
        ii. Stroke
        iii. MI
    b. Pathways
        i. Spinal Cord Injury
        ii. Traumatic Brain Injury
    c. Bundles
        i. Ventilator Acquired Pneumonia
        ii. Pressure Ulcer Prevention
        iii. Central Line Sepsis Prevention
    d. So…would a "family care bundle" help?
11. But first….Before introducing the bundle, we need to look at Lazarus and Folkman's Model of Stress, Appraisal, and Coping, because it:
    a. Provides a foundation to build on
    b. Provides insight on why stressed people do what they do
    c. Has been widely used in many settings

d. Can be used in diverse situations

12. Lazarus and Folkman's Transactional Model of Stress and Coping
    a. Relationship exists between person, stress, and appraisal
        i. How a person views a stressor affects how it is appraised
        ii. How a person appraises a situation affects coping
        iii. Nurses can evaluate the person and the reaction to a stressor to determine how to help them appraise and cope effectively.
    b. The reaction between person and environment is mutually reciprocal and bidirectional—in other words, one is caused and affected by the other
    c. There are two appraisals
        i. Primary appraisal
            1. Person identifies stressor
            2. Is either harm/loss, threat, or challenge
        ii. Secondary appraisal
            1. Evaluation of what can be done
            2. Nursing's part
    d. Help family produce secondary appraisals that are effective in managing stressors
        i. Example:
            1. Stressor is the critical care unit.
            2. Primary appraisal is the unit is frightening, cold, and unfamiliar.
            3. Nurse can help family by orienting them to the unit, providing information, doing whatever is possible to assist.
            4. Secondary appraisal is "I can handle this."
        ii. Figure of the Theory (as related to families in the critical care setting)

13. Family Systems Theories
    a. Provide a foundation for understanding families.
        i. Basic Family Systems
        ii. Generational
        iii. Socioeconomic
        iv. Cultural
    b. General (Bowen Family Systems Theory)
        i. Reciprocity
            1. A change in one part results in a reciprocal change in another.
            2. In other words, if one member is no longer able to fill a role, someone else fills the slack. (Baby of the family, leader, role model, etc.)
            3. Explains the reason for some of the family dynamics commonly seen in critical care.
        ii. Triangulation
            1. Three person relationship system
            2. Basic building block of an emotional system
            3. Usually two are in harmony, one pushing for a change
        iii. Emotional cutoff
            1. Removing oneself from a family member or situation

2. Cut off difficult situations/relationships ("black sheep of family", one parent when a divorce occurs and sides are taken, etc.)

c. Generational (Carter and McGoldrick)
    i. Vertical stressors—passed down through generations
        1. Patterns
        2. Myths
        3. Issues
    ii. Horizontal—occur as the family moves through time
        1. Predictable, a part of live
            a. Marriage
            b. Childbirth
        2. Unexpected and/or external
            a. War
            b. Untimely death
            c. Chronic illness
    iii. When a family is having problems (perhaps as when a member is critically ill), it lacks time perspective, magnifying the present moment. Not recognizing that life means continual motion from the past into the future, they are overwhelmed and immobilized by their feelings.
d. Socioeconomic (Ackerman's Conflict Theory)
    i. Conflicts are inevitable throughout the life cycle.
    ii. The family evolves through conflict.
e. Cultural: Families of various cultures have specific characteristics. Understanding these characteristics helps to understand why families react the way they do.
    i. Zambrana
        1. Hispanic
    ii. Boyd-Franklin
        1. African American
    iii. McGoldrick
        1. Irish

14. Solution: EPICS Bundle
    a. Five concepts to apply when developing interventions for families
        i. Evaluate
        ii. Plan
        iii. Involve
        iv. Communicate
        v. Support
    b. Concepts, not Specific Interventions
        i. Concepts guide you to determine what interventions are best in a particular situation
        ii. If you incorporate these five concepts in your family care, you will be
            1. Meeting their needs
            2. Providing holistic care
            3. Improving patient outcome

4. Improving patient and family relations
5. Basing your nursing practice on evidence

15. E=Evaluate
    a. Quickly evaluate family and individuals as you meet them
    b. Consider background and current occurrences
        i. Use Family Theory background
        ii. Talk to family to learn what is going on now
    c. Not a formal assessment—just make a quick determination of who this family is!
    d. Actually, you are most likely already doing this
    e. When you family members, do you make determinations? Then you evaluate!
    f. The key is to make the evaluation therapeutic
16. P=Plan
    a. Plan interventions based on
        i. Patient condition
        ii. Patient desires
        iii. Family member desires and capabilities
        iv. Family systems theories
        v. Your own comfort level
17. I=Involve
    a. Everyone has had experiences when family involvement was not good. For example:
        i. In the way
        ii. Bothered patient
        iii. Asked so many questions, you couldn't get your work done
        iv. Made demands you thought were unrealistic
    b. The key is to make the involvement therapeutic!
        i. For patient
        ii. For family member
        iii. For nurse
    c. Base involvement on the individual situation
        i. What is best?
        ii. What can the family member do?
        iii. What does the family member want to do?
        iv. How can involving the family help?
    d. To make involvement therapeutic for the patient
        i. Look at patient response
        ii. Intervene if the response is negative
        iii. Redirect the family to do something else
    e. To make involvement therapeutic for the family member
        i. Encourage involvement <u>to the extent of individual capabilities and desires</u>. Examples, the family member can:
            1. Assist with or provide oral care
            2. Wipe face
            3. Read to patient
            4. Bring things from home: pictures, music, pillow, toiletries, etc.

5. Provide information regarding patient
    a. Special needs
    b. Likes and dislikes (i.e., blanket or not?)
ii. But not every person will want to do the same things!
iii. Remember—if someone is not comfortable with the involvement, it is not therapeutic
iv. If it is not therapeutic, changes are needed

18. C=Communicate
    a. Families rate information as very high on their lists of needs
    b. They are confused
        i. Conflicting information from various health care providers
        ii. Stress makes them forget
        iii. Most are unfamiliar with medical terminology
    c. Encourage questions
    d. Answer them!
        i. Direct them to the right person/place if you can't give an answer
        ii. Facilitate meetings
            1. Doctors
            2. Social worker
            3. Case manager
            4. Etc.
                a. Be at these meetings when possible so you can reinforce and/or explain

19. S=Support
    a. Be family advocate
        i. Many feel powerless
    b. Provide assistance
        i. They have many needs
    c. Mediate with physicians
        i. Common complaint is "I haven't talked to a doctor"
    d. Provide resources
        i. Social worker? Chaplain? Etc.
    e. Show concern

20. Continuity of Care
    a. Nurse to Nurse
        i. Include your family assessment at shift change report
    b. Multidisciplinary
        i. Include your findings at team rounds
        ii. Share with other disciplines
            1. Listen to input
            2. Provide information

21. Summary
    a. Families of critically ill trauma patients are highly stressed
    b. The greater the needs, the greater the stress
    c. If we can help them meet needs, their stress will decrease

d. We need to know how to help them
e. Protocols and bundles are useful
f. The EPICS Bundle includes five concepts that provide a foundation for family care
    i. Evaluate
    ii. Plan
    iii. Involve
    iv. Communicate
    v. Support

22. Using the EPICS Family Bundle, you will have the tools necessary to be able to develop and administer your own care plans in a manner that suits you while meeting the needs of your patients, families, lowering their stress.

APPENDIX G: TRAUMA TIDBITS

Trauma Tidbits

Critical care families' number one need is hope[1, 2]. This man's family needs hope. Can you help them find it?

Molter NC. Needs of relatives of critically ill patients: a Descriptive study. *Heart Lung.* Mar-Apr 1979; 8(2): 332-339.

Leske JS. Treatment for family members in crisis after critical injury. *AACN Clinical Issues.* Feb 998; 9[75]:129-139.

APPENDIX H: TRAUMA TIMES WITH SIGN-IN ROSTER

Shands at the University of Florida

Trauma Times

Critical Care Special Series

December 15, 2008

Evidence-Based Program to Assist Families Introduced

The EPICS Family Bundle was introduced to the staff of Shands SICU in December 2008. It is based on research previously conducted on families of the critically ill, and its intent is to assist nurses to help their patients' family members deal with their stress and cope more effectively. Research indicates stress experienced by a family member can affect the patient negatively; but at the same time, family presence can help the patient. Families usually desire to be close to their loved ones, and have specific needs nurses should be able to provide or facilitate.

The plan provides five concepts nurses can use as tools to guide their actions when dealing with families. It is not designed to dictate exactly what should be done. Using the method will aid each nurse in individually determining the best actions in each circumstance.
The five concepts evaluate, plan, involve, communicate, and support make up the acronym EPICS. Every week, a concept will be emphasized. In addition, an educational program entitled "EPICS: How Helping Families Helps Everyone" has been posted in the Nursing Education section of the hospital intranet system. It explains the program, and two continuing education credits that are approved for trauma are awarded upon completion of the test.

Approximately ten nurses will be trained to mentor the staff and assist them with implementation of the plan. They will be available 24 hours a day.

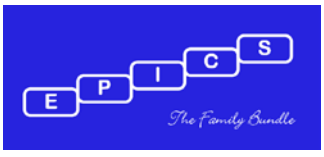
Participation in the program provides an opportunity for staff to be on the cutting edge of evidence-based practice, and it will promote an atmosphere that welcomes family members and recognizes their importance in the recovery and wellness of the SICU patients.

Van Horn E, Tesh A. The effect of critical care hospitalization on family members: stress and responses. *Dimensions of Critical Care Nursing.* Jul-Aug 2000;19(4):40-49

Auerbach S, Kiesler D, Wartella J, Rausch S, Ward K, Ivatury R. Optimism, satisfaction with needs met, interpersonal perceptions of the healthcare team, and emotional distress in patients' family members during critical care hospitalization. *American Journal of Critical Care*. 2005/05// 2005; 14(3):202-210.

Titler MG, Cohen MZ, Craft MJ. Impact of adult critical care hospitalization: perceptions of patients, spouses, children, and nurses. *Heart & Lung.* 1991; 20(2):174-182.

Swoboda SM, Lipsett PA. Impact of a prolonged surgical critical illness on patients' families. *American Journal of Critical Care.* 2002; 11(5):459-466.



My signature reflects that I have read and am responsible for the following information:

Date: 1-16-09 **Information:Revised:** Trauma Times

		EMPLOYEE		EMPLOYEE	
Aguilera, Daniela		Halfacre, Cynthia		Pinder,Kristen	
Albanese, Gina		Hamby, Brenda		Pinto,Mariana	
Anderson, Beth		Hamm, LuCinda		Prazer, Rachel	
Anglin, Colby		Henfield—Johnson, L.		Rapacki, Kathy	
Aragon, Pamela		Hernandez, Marissa		Reyes,Maria	
Bair, Ruth		Hoffman, Jeffrey		Rivera, Susan	
Baris, Allison		Holt, Cimaron		Royal, Natalie	
Bariteau, Henry		Horvath, Tim		Russ, Alice	
Bembry, Mary Beth		Jericho, Cathy		Sallustio, John	
Benefield,Jessica		Johnson, Camille		Sams, Julie	
Blanchard, Katherine		Jones, Lee Ann		Sapp, Renae	
Boneta, Tamara		Jordan, Trudy		Scoca, Nicole	
Bower, Ryan		Kebbel, Mallory		Senoren, Paul	
Briggs-Dowdy,		Keller, Ingrid		Sirinek, Justin	
Brindle, Karl		Kelly, Catherine		Smiley, Rochelle	
Butler, B. Joy		Kennedy, Lauren		Spoonhour, Erin	
Carr, Danielle		Kirsten, Julie		Springer-Llana,	
Celorio, Jessica		Knapp, Sandra		Stewart, Krista	
Cerlanek, Sonia		Knott, Virginia		Tracy, Michala	
Chatterton, Therese		Lang, Jennifer		Tuazon, Ruth	
Collamat, Sheila		Leffert, Marney		Tumulak, Mercedes	
Currie,Susan		Lewis, Kelly		Turco, Andrea	
Curry-Holmes, Shelly		Lilly, Stacie		Tyler, Melena	
David,Elaine		Lincoln, Jonathan		VanSlyke, Josh	
DeRose, Michele		Love, Delashawn		Vaughan, Shauna	
Dobbs, Cristi		Marker, Peggy		Villanueva,Goldwyn	
Dye, Jennifer		Martin, Marsha		Vitro, Christy	
Dykes, Robin		McCutcheon, Kevin		Welz, Mark	
Esguerra,Agnes		Melendez, Anthony		Wester, Ashley	
Falcone, Erika		Miller, Karen		Westhoff,Stuart	
Fitzgerald, Kathleen		Mokler, Melissa		Winge, Rebecca	
Francis, Bridget		Moss, Amy		Wise, Misty Dawn	
Frederick, Jennifer		Mueller, Kim		Wishin, Judith	
Fuchs,John		Musgrove, Cynthia		Young, Shelley	
Garrison, Michael		Neill, Lawrence			
Giebelhaus, Karen		Nico, Linda			
Gillin, Diane		Noah, Kristie			
Griffin, Rebecca		Park, Eleanor			
Gross, Dironada		Perri, Kathy			
Gutierrez, Adriana		Peters, Nancy			

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