Exploring Learning of Pediatric Burn Patients through Storytelling

Maryann Godshall

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EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS

THROUGH STORYTELLING

A Dissertation
Submitted to the School of Nursing

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Philosophy

By
Maryann Godshall

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EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS

THROUGH STORYTELLING

By

Maryann Godshall

Approved November 14, 2013

Dr. Linda Goodfellow
Associate Professor of Nursing
(Committee Chair)

Dr. Rick Zoucha
Professor of Nursing
(Committee Member)

Dr. Monica Miller-Marsh
Director of Pedagogy and Research
(Committee Member)

Dr. Mary Ellen Glasgow
Dean and Professor
School of Nursing

Dr. Joan Lockhart
Associate Dean and Professor
School of Nursing
This purpose of this study was to explore if pediatric burn patients learned from an age appropriate discharge teaching book. *The Pediatric Burn Book*© contained coloring pages and seven main teaching points; taking care of my body, bathing, eating right, exercise, sleep, going to school, and keeping follow up appointments. The children were admitted to a pediatric trauma and burn center in northeastern Pennsylvania over a two year period. Twenty children aged five through ten who had second or third degree burns participated in this study. The children were read the discharge teaching book, asked to draw a picture of them since the burn injury occurred, and then asked to tell about the picture they drew. Through their stories ten meaning units were identified; taking care of my body, what happened to my body, feelings of fear and anger, it hurt and I was uncomfortable, trouble sleeping, what I like to eat, my body itches, thinking about
outside, being upset with my parents, and my experiences with colors or the alphabet.

Three themes emerged from these meaning units; feelings and experiences, adapting to my life now, relating in my world. Conclusions were that sixteen of the twenty children did identify at least one teaching point in the teaching book in either their picture or their interview. Implications for nursing practice and education is that young children want to learn about what happened to their bodies and be part of the education process. Drawings provide insight into what children are thinking and feeling after suffering a traumatic injury such as a burn. Future research recommendations are to examine long term retention and outcome data of this education effort and determine if important psychological services are provided acutely and long term for children with a burn injury.
DEDICATION

I would like to dedicate this dissertation to all the children I have taken care of over the many years as a Pediatric/PICU nurse, especially the children who had burn injuries and cancer. Your bravery and strength inspires me. You are my true heroes.
ACKNOWLEDGEMENT

I would like to thank my children Justin and Jenifer for their support and having patience with me during my doctoral studies. They are my source of joy and happiness.

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I would like to thank my mentor, Dr. Ruth Wittmann-Price for her never-ending support pushed me to continue when I wanted to quit, supported me through the coursework, and motivated me to finish. You are a good friend and colleague. As well as my friends and colleagues who listened and supported me along the way.

Lastly, I would like to thank my committee members for their endless hours of work, Dr.Rick Zoucha and Dr. Monica Miller-Marsh. Most of all I would like to thank my chair, Dr. Linda Goodfellow for believing in me and encouraging me to pursue my passion in pediatrics. I also want to thank you for your patience and guidance in completing this doctoral dissertation.
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CHAPTER 1

INTRODUCTION

1.1 Overview of the topic

Pediatric burns are a leading cause of serious injury and death for children. Each year over 250,000 children are seriously burned which require medical attention or hospitalization. Of the over 15,000 children hospitalized, about 1,000 of them die from their burn injury. This causes children to endure lengthy treatments which cause a large economic burden on both the families and society (American Burn Association, 2003). Burns often cause children to endure long periods of rehabilitation and physical therapy, skin grafts, and can leave them with life-long physical and psychological trauma (Safe Kids USA, 2004).

Burn injury is the second leading cause of accidental death in children from one to four years of age and the third leading cause of accidental death in individuals younger than nineteen years (Merz, Schrand, Mertens, Foote, Porter, & Regnold, 2003). Scald burn injuries (caused by hot liquids or steam) are the most common burn injury among young children, while flame burns (those caused by direct contact with fire) are more prevalent among older children. All children are also at risk for chemical and electrical burns. It is important to note that because younger children’s skin is thinner than older children and adults, their skin burns at a lower temperature and deeper (Safe Kids USA, 2004).

It is important to consider several factors to determine the severity of the burn. Factors such as total body surface area (TBSA) burned, depth of burn, whether skin
grafting is needed, or if an inhalation injury has occurred are some of the criteria that determine the severity of illness and length of hospital required. The burn injury creates a wide array of complications that affect a child’s developmental, functional, and aesthetic status immediately and in the future (Serfhiou, M., Rose, M., Pidcock, F., Esselman, Engrave, L., Kowalske, & Lezotte, D.L., 2006).

To date, there are 128 burn care facilities in the United States as per the 2007 Nation Burn Repository (NBR), (Miller, Bessey, Lentz, Jeng, Schurr, Browning, & the ABA NHR Committee, 2008). In southeastern Pennsylvania, southern New Jersey, and Delaware there are four regional burn centers (Burn Foundation, 2009). One of those four has been chosen to conduct this study.

Much effort has gone forth in burn prevention, but with children under the age four, the children simply do not understand the danger and thus have limited ability to escape situations due to their cognitive and developmental abilities. While it is the parent’s responsibility to keep the child safe, burn injuries continue to occur.

Frequently discharge instructions are given to the parents alone and the child is ignored. It is most important that children be included in the discharge education process, since it is their bodies that have been burned. Children also need to know how to care for their bodies, the importance of good nutrition, exercise, and follow-up care. This education needs to be presented at the child’s developmental level taking into account their cognitive ability so that they can understand what has happened to them and what they can expect in the future.

1.2 Background of the Study
Working with pediatric burn patients in a pediatric burn center and level one trauma center created the opportunity to care for and provide education upon discharge to this patient population. After several years of working with pediatric burn patients, it was apparent to the researcher that most discharge teaching is primarily done with the parents or caregivers. The children are often ignored, sent off to play and not made part of the burn care which involves their own bodies. A review of the pediatric literature revealed the lack of tools available to teach children at their level of understanding about their burn injuries. Thus the impetus for the development of a child-friendly story and coloring book developed by this researcher, entitled *The Pediatric Burn Book*©. The book is age-appropriate teaching tool that will help children learn about their burns. It is not yet known whether *The Pediatric Burn Book*© will meet the needs of the children it is intended to help. As noted in the literature, it is very difficult to measure how children learn in the hospital about their burn injury because there are few tools that are appropriate for children. However, through storytelling (Macfayden, 2004) may be a way by which *The Pediatric Burn Book*© can be further examined to determine if learning occurred. Storytelling enables the child to become a more active participant with respect to their healthcare. Listening to children’s stories provides insight into their level of understanding and can provide information about gaps in their understanding and comprehension. Storytelling also builds and strengthens the nurse-patient (child) relationship (Bankes-Wallace, 1999).

In conjunction with storytelling, the children will draw a picture to facilitate their ability to articulate their feelings and thoughts. Art is quite different for a child than an adult. For a child art is a primary means of expression. No two children are alike and
children’s art is always growing and changing with age and life experience (Lowenfeld & Brittain, 1987). Art can be used as a release for children under stressful conditions simply because there are no “right or wrong” answers in art. An art project or drawing is viewed as a reflection of the inner personality of the child. A child draws only what is actively in their mind. Therefore a child’s drawing is a good record of the things that are important to the child during the drawing process and a moment in time in the child’s life experience (Lowenfeld & Brittain, 1987). Art is a way of facilitating emotional expression. Art projects are ways children can translate images and feelings into shapes and colors. Art can make concrete what cannot be expressed verbally (Glazer & Marcum, 2003). Free-style drawing allows the child to draw whatever first comes into their head. No restrictions are placed on the child. They are free to create and express themselves through drawing.

In relation to children who have experienced a traumatic event such as a burn injury, a drawing provides an opportunity to share their experience and allows adults to see the traumatic event as the child sees it. A child’s drawing also provides a stimulus for the child to tell their story and makes nurses and others aware of their personal experience (Steele, 2002). Malchiodi (2001) concluded that drawing provides children with the impetus to tell their stories and a way to translate their traumatic experience into narratives to express themselves.

1.3 Purpose of the study

The purpose of this study is to examine whether pediatric burn patients can learn about their burn injury through a coloring book about burns. So often when nurses are performing care and providing discharge teaching they speak to the parents as if the child
isn’t even there. For a child who will be forced to live with the long-term sequela of a burn injury; alteration in body image, psychological reaction and perhaps impaired social interactions, it is important that they understand not only what has happened to their body, but how to care for their body in the future. Also important is to help the child understand that they are the same person as before the burn injury, just that their skin may look a little different.

Through education at the age-appropriate level it is hoped that they can learn what to do to help their skin heal, minimize scarring, and prevent long-term physical and psychological effects from the burn injury. *The Pediatric Burn Book®* is meant to be an instrument to do just that. This study will assist the researcher in determining if the book is doing what it was intended to do, or if it needs to be modified.

The children who participate in this study will be given *The Pediatric Burn Book®*. The researcher will go through the book and read it to them. The child will then be asked to color a picture after reading the burn book. Then, they will be asked to “tell me about your picture.” What they say will be recorded. Any themes will be identified. The researcher will note if the themes identified by the children correspond to the educational themes presented in *The Pediatric Burn Book®*. Other themes identified (if any) will be noted and recorded. The specific aim of the study is to see if the themes identified by the child match the teaching themes in *The Pediatric Burn Book®*. This is how learning will be determined.

1.4 Significance of the study

A paucity of literature is available to teach children with burns to understand what has happened to them, and how to care for themselves after a traumatic event such as a
burn injury. There are even fewer tools written at a child’s level that assists them in understanding. This study hopes to explore pediatric burn patients, their perceptions, and feelings, and communicate with them at their level to have as normal a life as they possibly can. The children need to be included in learning about their bodies. The teaching tool, The Pediatric Burn Book®, may prove to be instrumental in helping nurses to educate the youngest of our burn patients. Dise-Lewis (2001) shares that “educating the child, teaching them what to anticipate, and involving them as the expert on themselves, can greatly reduce the child’s experiences of pain and anxiety, p. 259.” This shall be the ultimate goal, to assist the child in understanding what has happened to them at their developmental level so that their fear, anxiety, and uncertainty of their future can be reduced and replaced with confidence and independence in taking care of themselves. By including the children, we can empower them and give them a voice into their care. This is significant in that this teaching tool is ground-breaking for the pediatric burn patient.

1.5 Research question

What are the experiences of children hospitalized for a burn injury who have read The Pediatric Burn Book®?

1.6 Definition of terms

For this study the following terms were defined:

**Pediatric burn patient:** is defined in this study as a school-aged child aged five to ten.

**Storytelling:** The child’s personal reflection and description of their art drawing at one moment in time; a snapshot of one moment in time.

**Art:** The child’s free-style drawing
1.7 Assumptions

1. The children will want to participate in this study

2. The children will want to read *The Pediatric Burn Book©*

3. The children will want to draw a picture for the researcher

4. The children will be able to describe their picture to the researcher through storytelling.

5. The children will be truthful in their responses.

1.8 Limitations

1. Children may alter their verbal responses depending on the presence of the parent or caregiver in the room.

2. The child may alter their response in either drawing or talking about their drawing depending on their level of pain. However, every attempt will be made for each child to be pain-free during the interview process through collaboration with staff nurses and medication needs.

In summary, this study hopes to give children with burns a voice and engage them in the care of their own bodies. It is important that healthcare practitioners recognize that children are people too, and thus need to be part of the education process. After all, it is their body that was injured. This study will provide insight and a better understanding of whether a coloring book is an appropriate way to teach young children about their burns. This may empower children and give them an active part in the care of their own bodies. In the times of patient centered care, pediatric practitioners cannot lose focus that the child should be the center of both care and education.
CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Introduction

This purpose of this research study is to determine if a child learns anything about their burn injuries from *The Pediatric Burn Book®*. Both art and storytelling are excellent ways that children can translate their images and feelings. Art is the vehicle that allows children to share their feelings by shapes and colors which make concrete what they cannot express verbally (Glazier & Marcum, 2003). This chapter will consist of a review of the literature which includes a background of pediatric burn injuries; an examination of the developmental and cognitive aspects of school aged children; and a discussion of the method of storytelling. This will be facilitated by the use of the child’s artwork. In addition, gaps in the literature will be addressed followed by a section that will summarize this chapter.

2.2 Pediatric Burns

It is estimated that more than one million people in the United States suffer a burn injury each year. One third of those are children. Burn injuries are the second leading cause of accidental death in children from one to four years of age and the third leading cause of accidental death in children less than nineteen years of age. Scald injuries are the major cause of accidents in the zero to three year old age group and flame burns are the most common cause over three years of age (Mertz, Schrand, Mertens, Foote, Porter, & Regnold, 2003). The American College of Surgeons reported in the National Trauma Data Bank (NTDB) that in 2004 there were 5,223 pediatric burn patients of which 96
pediatric patients died. The pediatric component of the NTDB contains over 235,000 records from 474 trauma centers in 43 states, territories, and the District of Columbia (National Trauma Data Bank, 2004).

The extent of injury of a burn is expressed as a numerical value that indicates a calculated percentage of the total body surface area (TBSA) involved. This accurate estimation is very important to guide treatment and determine prognosis for the burn patient. There are several methods utilized to this such as The Lund and Browder chart (most accurate across age groups) or the rule of nines (Merz et al., 2003). These methods are both charts that assist the health care provider to determine numerically using a pictorial diagram of the body the actual percent of body involved in the burn injury. As stated this percentage assists the practitioner determine severity of the burn and whether the patient should be referred to a regional burn center.

Burns are classified as to the extent and depth of the injury. First degree burns only involve the epidermis. They are characterized by swelling, erythema, and pain (similar to a mild sunburn). Tissue damage is usually minimal, and there is no blistering. Pain typically resolves in 48-72 hours. A second degree burn involves injury to the entire epidermis and a variable portion of the dermal layer. Vesicle and blister formation are characteristic of a second degree burn. A superficial second degree burn is extremely painful because a large number of remaining nerve endings is exposed. Superficial second degree burns usually heal in seven to fourteen days. Mid-level or deep second degree burns also heal spontaneously if wounds are kept clean and infection free. Pain is less in deep second degree burns because fewer nerve endings are left. Full thickness or third degree burns involve destruction of the entire epidermis, and dermis, leaving no
residual epidermis cells to repopulate the damaged area. The wound cannot epithelialize
and can only heal by wound contraction or usually will require skin grafting. The absence
of painful sensation and capillary filing shows the loss of nerves and capillaries
(Behrman, Kliegman, & Jenson, 2004).

Burns are among the most painful and devastating injuries a person can
experience and also include long periods of rehabilitation, skin grafts, and extensive
periods of physical therapy. Burn injuries produce not only physical trauma but
psychological trauma for both the child and the family. The Healthcare Cost and
Utilization Project (HCUP) is a group of databases sponsored by the Agency for
Healthcare Research and Quality (AHRQ). The Kids’ Inpatient Database (KID) is the
only all payer inpatient care database for children in the United States. This database is
available at http://www.hcup-us.ahrq.gov/kidoverview.jsp. The KID collected data in
2000 included 5,156 children who were aged 0 to 1 years old (median=3 years). The
majority of children had < 10% TBSA, and 95.8% had < 30% TBSA injury. The majority
of children, 63.6% had sustained a second degree burn (which is most common), 33.2%
sustained third degree burns, and 1.9% had first degree burns. Children≤ 2 years old were
most likely to sustain second degree burns (p< .01; OR=1.6; 95% CI: 1.3-2.0) while
children 3- 17 years old were more likely to sustain third degree burns (p< .01; PR=1.7;
95% CI: 1.3-2.2). The degree of burn does not overall characterize the injury but is an
indicator of the highest severity of the injury (Shields, Comstock, Fernandez, Xiang, &
Smith, 2007).

In examining body areas burned, children ≤2 years old were more likely than
older children to suffer a burn to the hand/wrist (p <0.01; OR=1.6; 95% CI, 1.3-2.0),
children 3 to 17 years of age were more likely to be burned on their leg (p < .01; OR=1.8; 95% CI: 1.5-2.1) (Shields et al., 2007). Developmental age and mobility does play a factor in the area of the body burned in children.

To date, there are 128 burn care facilities in the United States. As noted in the 2007 Nation Burn Repository (NBR), age continues to be an important indicator for thermal injury in children. It was also found that minority children are more frequently the victims of thermal injury when compared with the national ethnicity distribution. The mechanism of injury and whether an inhalation injury is also present has a tremendous impact on survival, hospital length of stay, and the cost of care (Miller, Bessey, Lentz et al., 2008). Reasons given as to why minority children are more frequently victims include a lack of safety of the environment in the home and the inadequacy of parental supervision. It is noted that many of the parents are themselves unaware of potential hazards and eliminating them from the child’s environment. In examining poverty related to burns it is speculated that children living in environments with outdated heating and bad wiring, and the use of space heaters in the homes of these children may lead to more house fires. Smoke detectors may be looked at as a luxury and the price of batteries may impact having functioning smoke detectors in low income households. Dangerous hot tap water temperatures may be common in multi-low income housing units; and economic restraints may lead to inadequate adult supervision for a variety of reasons (Athey & Kavanagh, 1999).

In addition, 91.4% of the time, the burns occurred at the child’s home, and 8.6% of the time, burns occur on farms, industrial places, places of recreation or sport, on streets or highways, in public buildings, or at residential institutions (Shields et al., 2007).
It is imperative that parents take appropriate safety precautions to prevent burns in the home.

The majority of children that have died from burns were burned by fire/flame ($p < .01$; OR=3.4; 95% CI: 2.8-4.2). Other causes include hot liquids and vapors, electric current, or clothing that catches on fire (Shields et al., 2007). Conversely in examining the mean length of stay for pediatric burn patients, children whose clothing caught on fire stayed longer than children who were burned by fire/flames (Shields et al., 2007). The average hospital length of stay was 5.52 days. The average hospital ICU length of stay was 5.69 days (National Trauma Data Bank, 2004). Shields et al., (2007) found the average length of stay was 6.6 days (95% CI: 9.5-7.4; median 3 days).

Mortality data related to patient age is inconclusive. Thombs, Vijay, & Milner (2006) found that children younger than four years of age are at greater risk for mortality from burn injury than older children. Spinks, Wasiak, Cleland, Beben, & Macpherson (2008) agree and add that children aged one to five years of age are at the highest risk of death. Sheridan, Remensnyder, Schnitzer, Schultz, Ryan, & Tompkins (2000) disagree and share that the expectation for survival of children is increasing, and state that young age alone is not a predictor of mortality in burns. In their study those children who died had larger burns (TBSA) with a concurrent inhalation injury. It can be concluded that the severity of the burn is a better predictor of mortality than is age. Also with the new burn treatment technologies, all children should be considered treatable regardless of patient demographics or burn type. Age alone is not always the best predictor of outcome (Spies, Herndon, Rosenblatt, Sanford, & Wolf, 2003). Also important is where the child is treated. The American Burn Association has criteria for which children should be
transferred to a regional burn center and not treated at a community hospital. This information is available online at 

http://www.ameriburn.org/BurnCenterReferralCriteria.pdf.

This is important because resources, latest treatment guidelines and technologies, and burn treatment materials are readily available as well as certified burn trauma physicians and specialized burn plastic surgeons.

For smaller burn injuries, Rawlings, Khan, Shenton, & Sharpe (2007) examined pediatric burns treated in the emergency department (ED). The ages of the children were one to sixteen years of age. They concluded that while many pediatric burns were appropriately managed in the ED without the need for burn center care, these burns were smaller in TBSA and severity. The BSA of the burns treated in the ED ranged from 0.1 to 23%. The average TBSA was 1.8% (SD 1.4), which is a very small burn injury.

Rawlings, Khan, Shenton, & Sharpe (2007) also noted that education and prevention programs are needed to help address the problem of childhood burns. It is imperative that children are included in the educational process. In order for children to have positive learning experiences, teaching tools must be developed that are age appropriate. Hockenberry (2009) shares that when communicating with parents, do not exclude the child. School-age children want explanations and reasons for everything. If a procedure is being done to them, they like to know what is going to take place, and why it is being done to them specifically. If you involve the child, they become an enthusiastic participant (Hockenberry, 2009). This is extremely important for caring for their burn injury. School-age children have a heightened concern about body integrity and are sensitive to anything that they perceive as a threat or an injury to their body.
Using age appropriate teaching materials is important to decrease their anxiety and enables children to voice their concerns. These children have a satisfactory use of language, but still require a simple explanation. Their ability to think concretely can help communication and explanation. They have sufficient experience with health and health care and understand what is happening and what will be expected of them. Therefore, age appropriate measurement techniques must be developed to measure the effectiveness of learning.

Few studies, however, have been found that have tested age-appropriate learning tools or used age-appropriate techniques to measure learning. The need for education and support following a burn has been shown in a retrospective, cross sectional longitudinal study of eighty pediatric burn patients in a regional burn center. These patients were younger than eighteen years at time of burn injury and survived massive burn injuries involving ≥ 70% of the total body surface area. These patients were admitted to pediatric burn centers and evaluated at an average (SD) of 14.7 (6.0) years after injury. Sheridan Hinson, Lian, Nackal, Schoenfeld, Ryan et al., (2000), found that children who survive severe burns have lingering physical disabilities, mobility issues, scar management, and sometimes depression. However, most of them did have a satisfying quality of life. They also showed that the child’s early re-integration with pre-burn activities predicted higher general healthy scores (p = .03), physical functioning (p = .003), and physical role (p = .01). The importance of multidisciplinary follow-up care was emphasized and when follow up care was continued for two years, these children had higher physical functioning (p = .04) (Sheridan, et al., 2000). The importance of follow-up care such as keeping doctor and physical therapy appointments needs to be emphasized to both the
parent and child through education which should begin in the hospital and continued on an out-patient basis.

The first mention of the psychosocial sequelae of children with large (>80%) total body surface area was done by Blakeney et al, in 1993. In this study twenty-five children were examined. Assessment tools including the Child Behavior Checklist (Achenbach, 1991), Teacher Report form (Achenbach, 1991), Piers-Harris Children’s Self-concept Scale (Piers, 1984), Parenting Stress Index (Abidin, 1986) and a parental questionnaire designed by the authors and art were used to examine psychological adjustment of children and parents. For the group, the children’s behavioral problems as reported by the parents and the children’s teachers were “normal.” The parents stress differentiated from the burn population which showed that the impact of families is significant and should be considered in the rehabilitation process of the child. In this study, a journal entry of a child who suffered 99% TBSA burns, viewed himself as living in a “nightmare” but rates himself on standardized tests as within normal limits. His teacher sees him as withdrawn but not to a clinically significant degree. These discrepancies of his perception and that of his parents and teacher are noted as all correct. Felsmar and Vaillant (1987) attribute the boy’s successful resiliency as utilizing suppression verses repression of feelings. He through suppression has access to his pain verses a child who represses feelings and therefore doesn’t deal with the situation or his feelings. A journal entry of a question “If I could do anything while I am alive I would…” the child responded by saying “get my old body baaaaack.” Noted is the emphasis of stretching the word “back” it can be imagined that he would be emphasizing or screaming this word. The second part of the assignment had him “draw yourself doing something that you really want to.” He drew a picture of
himself fishing. Another picture assignment asked of a different child was a picture template of a hand holding a mirror and the question asked was “I am different from other people because…” The child wrote “I am burned and I feel as if the world is upside down.” These journal entries utilizing art provided rich access to the children’s inner feelings even though the child regarded themselves as “normal.” Both of these boys and other children who responded said they are glad they are alive and are looking forward to the future with hope and optimism, but they also are sad and angry and wish they were never burned (Blakeney et al., 1993). This study showed that by using art and a completion sentence, children could express their emotions more easily.

These journal and pictorial entries allowed pediatric burn specialists to understand that their adaptation to their injury is a process that occurs over many years and we must support, guide and validate their struggles as well as celebrate their victories and accomplishments. These pictorial representations allowed a door into the child’s inner feelings previously not able to be conveyed. It is important that clinicians and investigators need to increase their awareness of the psychological symptoms associated with simple traumatic injury such as burns and provide treatment during the immediate post-injury period at an appropriate level that the child can understand.

2.3 Communicating with Children

Teaching about illness is another cornerstone of nursing care. Particularly when dealing with children who are burned, it is very important that not only the parent understand how to care for the child and the child’s body, but the child also needs to understand, and be taught how to take care of their body. Children should not be ignored. This was the impetus for the development of The Pediatric Burn Book© by this
researcher. Healthcare providers need to include children in both teaching and when providing information about injury.

Communicating with children can be a challenge. Important to remember is that for the life of a young child, the family and the people who care for them is the center of the child’s world. Children learn to communicate with the extended family, neighbors, and friends through social interactions. Adults often make the mistake of thinking that children under the age of seven or eight are too young to notice what is going on around them and are not able to communicate their thoughts and feelings. That is not true. From birth, children are aware of what is going on around them because they live in a social group and are quite sensitive to the emotional climate around them. Even if they cannot put their feelings into words, young children are able to express themselves through their behavior, playing, and drawings. In order to help children we need to be sensitive to these “indirect” communications which may manifest themselves as dreams, nightmares, or imaginary friends. Opportunities must be provided for play and creative activities to allow children to express themselves and what they are able to do (Richman, 2000).

Children, who go through a traumatic experience such as a burn injury, may slide backwards in communication style and we need to understand and adapt our ways of communicating with them as if they were younger. Also paramount for all children are the presence of at least one familiar person who provides continuity of care. This is particularly important for young children who find it difficult to trust and communicate with someone who is unfamiliar to them such as a health care practitioner (Richman, 2000). Learning how to communicate with children is extremely important.
Strategies suggested to effectively communicate with children according to Brown (2004) are as follows:

- Use a calm, unhurried voice
- Speak clearly and be specific.
- Use play as a strategy to get to know the child. Initiate conversation with a toy or stuffed animal if needed.
- Listen and observe the child at play. This is when they may communicate difficult feelings or problems.
- Look for opportunities to offer the child choices when possible.
- Be honest when talking with children
- Avoid phrases that might be misinterpreted by a child
- Avoid expressions with dual meanings such as “put to sleep”
- Use words that are not threatening
- State directions in a positive way
- Avoid prying or asking embarrassing questions
- Don’t lecture children when giving advice
- Avoid using negative “you” messages for example that instead of “you took your bandage off, you might say, the bandage came off.
- Send “I messages” to communicate thoughts feelings, expectations, or beliefs
- Provide descriptive praise or point out the child’s attributes. For example, “you did a great job holding still during that procedure”

Also keep in mind some age-specific considerations when communicating in children (Brown, 2004, p.46)
Infants

- Consider body language such as gestures and posture as well as pitch, intonation and intensity of voice.
- Nonverbal behaviors work well with infants like cuddling, patting, or another form of gentle physical contact.
- Maintain a calm voice and avoid sudden, loud noises. The actual word spoken is not as important as the tone and way they are spoken.
- Infants fear strangers as early as six months, so don’t use hand gestures to ask an infant to come to you. Simply pick them up firmly without using gestures.
- Infants are more at ease when in an upright position and when in visual contact or close proximity to their parents.

Preschool and young school aged children

- Avoid quick approaches. If possible, let the child make the first move.
- Broad smiles and other facial contortions may appear threatening.
- Avoid eye contact until after the child is comfortable.
- Be sure to position yourself at the child’s eye level. This will appear less threatening to the child.
- Children may be more receptive when seated in their parents lap or close to their parent.
- Be direct and concrete with children. Do not use abstract statements to avoid confusion.

Older school-aged children

- Use simple explanations to facilitate understanding as children get older.
• Children at this age want concrete explanations and reasons for everything. They rely more on what they know verse what they see when faced with a new problem. They are learning new things about how their body works and explaining things simply will allow them to gain more knowledge about their bodies.

Adolescents

• Adolescents encompass a large variety of emotions and behaviors.
• Still give them concrete explanations to avoid confusion even though they are capable of abstract thought.
• Seek clarification of teens slang or jargon when needed.
• Initially speak with them about a broad topic to develop a relationship with them and gain their trust.
• Ask broad open-ended questions before more specific ones, such as “how’s school?” before asking “what is the best or worst thing about school?”

The above information was adapted by the director of the Child Life Department from the Children’s Hospital of Philadelphia as a resource guide for health care workers who work with children (Brown, 2004).

Communicating with children must be tailored to their developmental level and cognitive ability. One study that examined communication from the pediatrician with the child and parent in the office setting was done by vanDulmen (1998). Most often children are completely ignored during pediatrician visits and it was noted that often communication is directed to the parent instead of the child. Many school-aged children are quite capable of providing relevant information about their medical issue and
understand a lot of medical information. The reason provided by Colland, (1990) (as cited in vanDulmen, 1998) is that the pediatrician does not feel confident about communicating with children, or more often feels that it takes too long to communicate with children so simply speaks to the parents directly (Colland, 1990). Pediatricians do feel that children are capable of communicating about non-medical issues. However, it appears that pediatricians consider parents as primarily responsible for education and management of medical issues and speak to them, not the children. In the vanDulmen’s study (1998), it was found that only 4% of the time children contributed to the outpatient encounter. Pediatricians directed a small part (13%) of medical information to the child. Most of the questions and medical information was directed to the parent and the child was ignored. Other than social talk and laughter, it was found that the pediatrician-child direct communication increased with age. Also noted was that even when a child was directly asked a question, the parent answered it for the child even if the child was capable of answering the question. So both pediatricians and parents are guilty of not allowing the child to speak and be an active participant in their own care.

In looking at how we can bridge this problem and use teaching materials at the child’s appropriate developmental and cognitive age, Jenkins, Blank, Miller, Turner, & Stanwick (1998) was the only study found that used the intervention of discharge teaching book for pediatric patients with burns. This study took place at the Winnipeg Children’s Hospital which in a single-blind randomized trial they provided a discharge teaching book to children who were less than twelve years of age and their families. The book was written at a grade school readability level. The impetus for this study was that after a survey of discharge education programs in North American burn units, they were
unable to identify a discharge manual that met the requirements or needs of their patients. This is still a problem today in that limited items have been located by the researcher that are written at the child’s level of understanding in learning about burn injuries. The one item found provided by The American Burn Association focuses primarily on burn prevention. There is nothing available about burn education. In the above cited study, the authors examined the impact of the discharge book on patient’s and caregivers’ knowledge and satisfaction through administering a 17-item questionnaire they developed and also conducted a personal interview at the time of the child’s first follow-up visit to the outpatient plastic surgery clinic after discharge from the burn unit. They found that overall the discharge book improved the burn-care-related knowledge of caregivers, however other factors were indentified which included ethnic and language background that influenced the results of the study. Issues such as marked diversity in the values, personal beliefs, lifestyles, and home environment as well as family and support structures impacted this study. Particularly noted is that the person who was interviewed in the clinic was often not the person who received the discharge teaching or instructions, nor was it the primary caregiver. Different people brought the children in for follow-up appointments. Because of this lack of consistency of caregivers, this did not allow the researchers to reach statistical significance because of the large variance of knowledge scores. They did find that the recipients of the discharge book who were the same individuals who brought the child back for follow-up, did have higher knowledge scores and felt the intervention of the discharge book worthwhile, but again, the authors were not able to achieve statistical significance. Recommendations from the authors suggested that when providing a teaching book to patients make it very easy to read and make it
highly visual for wider appeal. Culture and language barriers are something that also needs to be considered in relation to the readability of the teaching tool. This will be noted if this is of any impact in this study.

2.4 The Use of Art and Art Therapy

Art can be used as an inspiration for narrative writing. Art or drawing is a fundamental human process. Art is personal and satisfying at any age. “Young children use art as a means of learning through the development of concepts which take visible form,” (Lowenfeld & Brittain, 1987, p. 3). Art and drawing have been recognized as one of the most important ways that children can express themselves and have been linked to the expression of both personality and emotion (Malchiodi, 1998).

Since at least 20,000 B.C. humans have been making marks and images to convey thought and messages. Both Freud and Jung have explored art in relationship of image to psyche. Art and art therapy has been utilized throughout time. Over the last two decades a growing interest in the use of art in health care has emerged (Malchiodi, 2007). Previous research studies have shown that drawing can reduce a child’s anxiety and allow the child to feel more comfortable with the interviewer or researcher. Drawings also help children organize their narratives or stories. Drawings allow children to tell more than they would during a solo interview (Gross & Hanes, 1998).

Viktor Lowenfeld’s work will provide a basis for understanding children’s art from a developmental level. The following are the stages of art development as described by Lowenfeld:

*Scribbling Stage (Ages 2-4)*
In the scribbling stage very young children start by making random marks on paper. These random marks become organized and controlled. It is not until the age of four that most children make any marks that are recognizable in their drawings. The scribbles themselves go through various stages of development which are from random scribbles to controlled scribbles (Lowenfeld & Brittain, 1987). This scribbling stage involves 4 specific types of scribbling which are within this stage. Lowenfeld (1947) described them as: 1) disorganized scribbling, which implies no control of motions and often appears chaotic and disorganized; 2) longitudinal, which implies repeated motions and the establishment of some coordination and control of making marks; 3) circular, which describes more control in the additional motor skill required to make a circle; and 4) named scribbles, which a change from kinesthetic to imaginative thinking occurs in the child. Malchiodi (1998) shares that this age has a limited attention span and limited motor skills which may not likely lead to much narrative from the child until the later end of the stage when they begin to name their scribbles.

*Pre-schematic Stage (Ages 4-7)*

In this stage the children usually make their first representational attempts. The children draw a typical head-feet representation of a person and then will start to draw other objects in the environment. These objects will be randomly placed about the page. This is the first stage where adults can talk with children about their art and children are eager to do so (Lowenfeld & Brittain, 1987).

*Schematic Stage (Ages 7-9)*

Here is where children develop a definite form concept. Their drawings symbolize something in the environment in a descriptive way. The children will usually repeat part
of the “schema” in some variation over and over again. During this stage the children will have a baseline. This means that the drawing will be oriented in a straight line across the page (Lowenfeld & Brittan, 1987). For example the house will be next to a tree which may be next to a dog. These items are all arranged in a straight line across the bottom of the page.

_Dawning Realism or Gang Stage (Ages 9-12)_

During this stage peers become so important to children. They will symbolize rather than provide an actual representation of an object. The objects are no longer in a straight line across the bottom of the page. Children become more aware of themselves and project that in their drawings. They are becoming interested in detail and no longer make large free-style drawings. They are no longer eager to show their drawings and explain them, but may hide them from adults at times. Their artwork now begins to reflect their greater consciousness of themselves as part of society (Lowenfeld & Brittain, 1987).

_Pseudo-Naturalistic Stage (Ages 11 or 12)_

At this time children become increasingly aware of their surroundings and pay attention to depth and proportion in their work. The stage is also noted the “age of reasoning.” There is a great deal of self-criticism and children will attempt to hide their drawings in notebooks depending on the drawing. They also now make attempts at cartoons. The drawing of the human figure shows a great deal of detail and an increase in awareness of sexual characteristics. There is a difference in the graduation of color. For many this marks an end of their artistic development. When adults are asked to draw something, they will make a drawing that is typical of a twelve year old. Some children at
the age of fourteen or later may take a real interest in visual art. This art form will continue if interest as well as support and encouragement are given. Most individuals will stop their art development here (Lowenfeld & Brittain, 1987).

*Drawings as Narratives*

The use of drawings provides children with a potential vehicle through which to tell their stories; and present views both through what is present in the image, and through their response to the image. The use of children drawing and having them tell stories provides therapists as well as other individuals, such as nurses, a way to understand meaning from a child’s perspective (Malchiodi, 1998). Using drawings and having children tell about their drawings not only validates what the child is feeling and experiencing, but helps them sometimes put a distance between them and their problems by making them visible (Malchiodi, 1998). This method is valuable for children to assist them to understand their feelings about the burn injury. Emphasis is made by Malchiodi (1998) not to ask why the child drew something, an open ended, broad question is vital to open the door to discussing a drawing. A question as simple such as: “Tell me about your drawing” is a good broad general opening question to starting a discussion with the child and was the technique used for this study. It is felt by the experts in this field “that children may speak to us more clearly and openly through their drawings than they are willing or able to do verbally,” (Pelander, Lehtonen, Leino-Kilpi, 2007, p. 335).

Nikoltsos (2001) discusses that there are four ways to look at children’s art. First through a psychological approach to discover the child’s inner conflicts; second, through a behavioral psychological approach, using art to examine the child’s thinking process; third through a developmental arts approach, one that compares the child’s visual
expression to what is expected at a particular age level; and fourth from an artistic or aesthetic view, which helps children develop a way for a child to express their artistic skills. Three types of qualitative and systematic observations are given when observing children and art. There is direct observation where the researcher is present throughout all of the art activity; the observer-participant observation where both the teacher and the observer is present during the art activity but are not directly working with the children; and the indirect or discreet observation where the children are completely unaware that their actions and dialogues are being recorded.

Resistance to drawing may occur. It is important to note that the art supplies provided may inadvertently create resistance. It is important to have markers that are not dried out; crayons that are not old and cracked, and provide high-quality paper or a child may become frustrated. It is also important to make the child feel safe and protected within a therapeutic relationship to share an experience that may have been traumatic such as a burn injury. Some children may not know how to get started and thus may need some prodding by the individual working with them (Malchiodi, 1998). All of these things need to be considered when a researcher has an art session with a child.

Drawing and Healthcare

In looking at studies where art was used with children in the hospital, Macfayden (2004) conducted a study with four and five year olds and interviewed children who had an overnight stay in the hospital. Key points are that the parent and child were allowed to choose the time and place to talk, the people present in the room (for example siblings in addition to the parent and child), the flow of the discussion by allowing the child to operate a Fisher Price ™ tape recorder, the equipment used (which was drawing
materials), and to take a break as directed by the child (for a snack or drink when needed). These children were asked to draw a picture of what it was like to be in the hospital and what had happened to them there. It was noted that all of the children were very positive about drawing and the drawing provided a context for the beginning of the discussion. A “draw and tell” approach was advocated as an excellent way to conduct interviews with children (Macfayden, 2004; Faux et al., 1988). The drawing was used as an ice breaker to start conversations and as a trigger to encourage children to talk about their experience in the hospital. Macfayden (2004) felt an advantage of this method is that it allowed for periods of silence from the child where topics of conversation could be easily changed if needed either by the child or the interviewer. The fact that they were engaged in the activity of coloring appeared to allow the child to avoid answering a question if they wished. The interviewer stated “tell me what is in your picture” as an open ended statement to allow the child to share their experience. It was found that every child was able to describe at least one aspect of their time in the hospital and in some cases very graphically. The descriptions included accurate details of the environment where the event occurred and interestingly verbatim reports of doctors’ and nurses’ comments. In the final interview when the child was asked what they would tell their friends if their friend was to have the same procedure, some indicated that they would have given them more information than they themselves had received. Compelling evidence of how important it is to not assume the child is not cognitively aware of what is happening to them in the hospital and their environment.

Artwork can be used the same way as written text to expand children’s knowledge of the world. Art can also provide a window into how children negotiate their
understandings of images and deal with their feelings (Gardner, 2003). In order to have a basic understanding of children’s capabilities and art, it is vital that one understand artwork at different ages and developmental levels. Lowenfeld’s work provides a guide for doing that.

The use of art for psychological and somatic aspects of physical illness has grown in usage for a variety of reasons. Most importantly art has been found to convey messages, both conscious and unconscious about the bodies and the minds of patients. The use of art has also been shown to help those who are confronting serious illness, pain, and debilitating symptoms to identify and share feelings, and heal both the body and the mind. These images can be described as dream images which date back to Hippocrates, and Galen who further developed Greek medicine, and Jung who all believed in this as an avenue to health (Malchiodi, 2007). The process of art making is recognized as being important to physical healing whether that be in the form of recovery or rehabilitation, learning to cope with illness or symptoms, or finding meaning for the experience of a life-threatening illness. Art-making can also provide an experience of normalcy that is so important for children in the concrete and formal operational phase of life (Malchiodi, 2007). It can give both adults and children a sense of control over their lives and as proposed by the researcher to be an avenue for education of children who have a burn injury.

Much of the research using art has been in using art tools to determine cognitive levels or to assess developmental levels (Marjanovic-Umek, Kranjc, & Fekonja, 2002). Art has also been extensively used as a therapy tool for those suffering trauma. One example of how art is used to assess pain in the pediatric population is the use of the
“Oucher Faces scale.” This scale uses six photographs of a child in various stages of pain on a continuum from severe pain (crying child) to no pain (neutral-faced child). The child is asked to point to the face that best describes their pain. Another tool is the Wong-Baker Faces scale in which they adopted caricature-like faces. The validity of this tool has been well documented (Stein, 1993; Wong, 1997; Wong & Baker, 1988) and the reliability of this tool also documented (Keck, 1996). The use of this line, caricature face was found to eliminate culture, sex, and age bias because the faces were non-descript (Pasero, 1997).

In a study by Herth (1998), sixty homeless children were audio-taped and analyzed using Colaizzi’s (1978) method of analysis. Transcript statements were compared with drawings and five themes representing hope emerged. This enabled the author to gain an understanding of hope which enabled them to develop programs that built on the hopes that children had already developed. In other studies the use of projective techniques of art to elicit children’s experiences, feelings, and perceptions is well documented (Bellack & Fleming, 1996; Poster, 1989). Clatworthy et al., (1999) developed an instrument to measure hospitalized school-aged children’s emotional status through drawing. Also used was a storytelling technique to measure anxiety in children (Hudson, Leeper, Strickland, and Jessee (1987). Bosert (1994) used an interview technique to obtain information from children in the hospital about positive and upsetting experiences, coping behaviors, and what nurses and doctors could do to better help them with the scary or troubling aspects of hospitalization. These projective techniques (drawings) have also been used to explore stressful experiences of childhood for example death of a sibling or responses to surgery (Atuel, Williams, & Camar, 1988; Craft & Wyatt, 1986, Craft, Wyatt, & Sandall, 1985; Manalo-Atuel, Daus-Williams & Tamba-Camar, 1988, Menke 1981; Pillemar & Cook,
1989; Robins, 1987; Wilson et al., 2007) and for children dealing with leukemia and painful procedures (Favara-Scarcco, et al., 2001). Gabriels (1999) used drawings as a way for children with asthma to relate their experiences with breathing difficulties and to identify environmental triggers while Barton (1999) used drawings to assess pain severity of children with arthritis. Drawings have also been used to obtain information on children that are abused or neglected during forensic interviews for court cases involving maltreatment or custody (Cohen-Liebman, 1994; 2001).

Waechter’s (1971) research on dying children was a landmark study in understanding of children’s awareness with death. The quality of nursing care was evaluated asking children aged four to eleven to draw what they thought the ideal hospital looked like and who or what did they think they would like there. It was proposed that children may speak to the researchers more clearly and openly through their drawings than they would be willing to do just verbally. The drawings are the impetus for verbal communication (Pelander, Lehtonen, & Leino-Kilpi, 2007). It is the bridge that is needed from the child’s inner world into our adult world of cognitive understanding. It was noted that in order to insure objectivity the child was asked to describe their drawing for verification and limit interpretation bias by the researchers. It is proposed that drawing is a method that yields a particular type of information, and more rich data, that no other method can offer (Polit & Hungler, 1999). Drawing also removes cultural bias which allows for information from children of any age, sex, socioeconomic status, or ethnicity because it is their own individual creation (DiLeo, 1983).

*Art Therapy and Post-traumatic Stress*
The use of art and projective techniques is also well documented in the literature with physically and sexually abused children (Piperno, Di Biasi & Levi, 2007; Garb, Wood, & Nezworski, 2000). This art allows these children verbalize what they have experienced when they cannot easily articulate their experience. This use of art using murals was done with pre-adolescent children in New York City after the World Trade Center Bombing; September 11, 2001. This development of the mural and self-reflection enabled them to talk and deal with their own traumatic memories and therapeutic healing which enabled them to move forward through their losses and trauma (Testa & McCarthy, 2004).

The use of art with other traumatic experiences and post-traumatic experiences has also been noted in the literature (Robb, 2002; Testa & McCarthy, 2004). One of the most commonly used projective tests based on drawing human figures is the Draw-a-Story (DAS) test by Rawley Silver after conducting studies of reliability and validity. The test was first published in 1988, revised in 1993 and again in 2002. It was developed to identify children and adolescents with masked depression and also can identify those at risk for violent behavior or aggression. The Silver Drawing Test (SDT) emerged from a theory that drawings might be used to bypass language deficiencies of deaf children. The SDT can be used to assess cognitive skills as well as emotional and cognitive strengths. The Draw-a-Man test was first developed by Goodenough in 1926. It was re-named The Draw-a-Person test in 1961 which can be used with two different scoring systems to either measure nonverbal intelligence or screen for emotional or behavioral disorders (Encyclopedia of Psychology, 2009). The House-Tree-Person (HTP) test developed in 1948 and updated in 1969, measures the individual’s personality through interpretation of
drawings and responses to questions. This test can be given to anyone over the age of three (Malchiodi, 2007). The Formal Elements Art Therapy Scale (FEATS) developed by Viktor Lowenfeld can be used to measure elements of art such as line quality (Malchiodi, 2007). One more recent projective drawing assessment for the use with multicultural populations of children who have multiple disabilities or communication difficulties is “The Face Stimulus Assessment Test” developed by Donna Betts in 2002. This test helps to understand the creative potential, cognitive abilities, and developmental levels of clients using art therapy (Betts, 2003). These are some of the more commonly used projective drawing tests.

2.5 Storytelling or Narratives

A comprehensive literature search was conducted using the words “storytelling” or “narratives”. The search also yielded the term of “narrative pedagogy” or the “biographical approach” as well as “narrative medicine” and “narrative inquiry.” For this study the term “storytelling” will be used to describe the story or information the child shares about their drawing. The word “narrative” was first introduced as a descriptive term in the Cumulated Index of Nursing and Allied Health Literature in 1997. According to this index, there is a difference between narratives and storytelling. Narratives are described as an “account of events experienced by the narrator” where storytelling is described as “the repeated telling or reading of a story by a person other than the narrator” (Frid, Ohlen, & Bergbom, 2000, p. 695). In nursing research “narratives” and “stories” have been used interchangeably (Frid, Ohlen, & Bergbom, 2000). People’s lives are stories. While people’s lives are ever-changing, how they describe their life experiences change as well. Again, this study will use the word “storytelling” to indicate
the “narrative inquiry research method.” This study also chooses to use the word “storytelling” because it is more appropriate and more easily understood by children, than the word “narrative.” However, when discussing the history of the development of the method, the word narrative or narrative inquiry will be used interchangeably.

Stories are fundamental dimensions of human experience and nursing practice (Smith & Liehr, 2005). Storytelling also affects the four domains of human existence. In the cognitive domain, the story transmits knowledge and assists in problem solving. Affectively stories bring about hope and may be cathartic; the creation of being connected and in a community occurs in the interpersonal domain, and personally, an individual gains insight by identifying themselves with the narrative of another person (Chelf, Deshler, Hiltman, & Durnazo-Arvizu, 2000).

Telling stories is considered a natural human impulse (White, 1981) and a primary way of making sense of an experience (Mishler, 1986). According to Chamberlain et al., (1997) when people create meaning from an experience, they often organize encounters into coherent stories.

Storytelling or narrative pedagogy was developed by Nancy Diekelmann “from an extensive analysis of the experiences of teachers and students within the discipline of nursing. Storytelling has been shown to be helpful in reforming the climate in the nursing classroom,” and gain understanding (Ironside, 2003, p. 123). Narrative Pedagogy arises out of shared experiences of students, teachers, and clinicians in nursing education (Diekelmann, 2001). Faculty use stories as examples to facilitate knowledge acquisition, promote greater understanding and comprehension, and illustrate various nursing concepts both good and bad. Students responded positively in course evaluations
stating that stories helped them learn and retain content covered in the classroom (Schwartz & Abbott, 2007; Davidson, 2004).

Mischler (1986) has led the narrative method as a way of tapping into the patient’s experience. The interview method is the most frequent way chosen when using narratives. This can follow a structured interview, a semi-structured interview, or an unstructured interview (Fielding, 1993). Mischler (1986) states it is the unstructured interviews that are more likely to produce stories, and this format allows participants to give freer responses.

Frank (2000) uses the terms narrative and story interchangeably and states that “people do not tell narratives, they tell stories” (Frank, 2000, p.354). Narratives or stories are actual accounts of human experience. They tell us about the storyteller and can tell us about ourselves (Carter, 2004). Wiltshire (1995) suggests that stories are “…casual, informal, contingent requiring conceptual sophistication and structure in the process of developing into a narrative” (Wiltshire, 1995, p. 78). Telling a story is a means of giving voice to feelings that may, if not told, be negatively internalized. This transition of silence about an experience into language can be helpful (Wiltshire, 1995). Narrative stems from the Latin “gnarus,” while ‘story’ stems from history in French, Latin, and Greek with the aim of entertaining forming part of the definition. In nursing research, “narratives and stories have been used interchangeably and synonymously for quite some time” (Frid, Ohlen, & Bergbom, 2000, p. 695). One of the strengths of storytelling is that it is a means of engaging with the world and provides multiple perspectives. One weakness is that the knowledge obtained is often ambiguous, contradictory and dependent on circumstances (Nairn, 2004).
In nursing, storytelling has been used as a teaching tool to influence nurses (Smeltzer & Vlasses, 2004; Ironside, 2003) and teach nursing students contextual meaning and how to build relationships with their patients (Diehl, 2007; Clarke, Hanson, & Ross, 2003; Diekelmann, 2001; Sakalys, 2000) as well as how to do a cultural assessment (Evans & Severtson, 2001). It has been used in Japan to enhance nursing student’s communication skills (Kawashima, 2005) and as an alternative method of nursing instruction to augment lecture (Rogge, 2001). This method can also be used to demonstrate socialization to the nursing role for nursing students (Benner, Tanner, & Chesla, 1997) as well as examine the work-role transition for newly graduated nurses (Anderson, 2008). Storytelling was used as a way to build the nurse-client relationship to allow the nurse to gain a deeper understanding of their client (Gaydos, 2005; Aranda & Street, 2001) and as a method to teach male nursing students to learn caring behaviors (Paterson, Crawford, Saydak, Venkatesh, Tshickota, & Aronowitz, 1995). Ramsey (2000) contends that storytelling is a great way to enhance nursing staff development as well as a debriefing tool.

Storytelling was also used to educate medical residents. In retrospective qualitative analysis of medical residents, they used storytelling to illustrate how pervasive poverty impacted children and families. It changed their attitudes and they emphasized the value of stories for education purposes in understanding culture and experiences (Chin, Aligne, Stronczek, Shipley, & Kaczorowski, 2003).

In exploring technology and the digital world, a pediatric digital storytelling system which incorporated eight stories was trialed by third-year medical students. This system appears to be successful and educationally useful. The responses were compiled
on-line over 4 ½ years. The researchers found that using a digital storytelling system was successful in overcoming some of the limitations found in other computer-based patient simulations. The digital system allowed patients to tell stories in their own words by focusing on problems instead of diseases. It also allowed the medical student to quickly work through problems and learn. Ninety-eight percent of the medical students said they could begin to evaluate similar patient problems and would remember at least part of the story provided. (D’Alessandro, Lewis, & D’Alessandro, 2004). Klerfelt (2004) sought to explore pre-school children and used the computer as a “storytelling tool” or a “storytelling machine.” She succeeded in bridging the gap of the culture of the pre-school environment and the media environment pre-schoolers are exposed to outside of the classroom. Important to note is the culture of children and that their response patterns are often determined by adults because they automatically put children in a passive role and don’t allow them to speak (this is similar in how we educate children in the hospital). This study was one of the only found in the literature that looked at children’s culture in terms of the child.

By putting the child in the consumer and active director seat, they were able to use “creative computing” to allow the children to create stories which bridge the gap of culture in the education setting with cultures in the outside world. Thus, also making the pre-school child a skillful multimedia user which is definitely helpful in today’s technologically driven world.

Schriger (2005) discussed the importance of stories in reports of medical research. Examples are provided of how narratives could be included in reports of randomized controlled trials, observational studies, and studies of diagnostic tests. Some of those
examples include an ethnographic study where the stories allowed the researchers to understand the experiences of living with chronic obstructive pulmonary disease (COPD) beyond the biophysical issues. It was concluded that stories told by patients in the context of the nurse-patient relationship inform the nurse’s understanding of the patients experience beyond their physiological experience (Bailey & Tilley, 2002).

Patients with dementia were examined in an interventional study that was part of a larger project. The results showed that storytelling helped these patients remember and make associations with situations they had previously experienced. The drama program of storytelling appeared to stimulate these patients with dementia (Holm, & Lepp, 2005). Storytelling was used to transmit educational messages to American Indian tribes to motivate them to adopt healthy, traditional lifestyles and practices. The stories illustrated the consequences of bad behaviors and encouraged the listeners to come to their own conclusions (Hodge, Pasqua Marquez, Geisheirt, & Cantrell, 2002). A conference was held for cancer patients and families in which a professional storyteller and individuals were encouraged to share their stories of living with cancer. Attendees were asked to complete a survey packet and returned to the authors. The results of this study showed that cancer patients felt that storytelling was a helpful way to cope with cancer (Chelf, Deshler, Hillman, & Duranzo-Arvizu, 2000). A content analysis of eighty-three stories was used to explore the differences of men and women who had suffered an arterio-venous malformation (AVM). Five main categories or themes were identified. It was concluded that knowing the concerns and perspectives of these patients may help nurses anticipate the needs of their own hemorrhagic stroke patients (Stone, 2005).
Storytelling is used as a relational methodology for exploring Aboriginal people’s experience for living with diabetes. By using this methodology it enables nurse researchers to bridge the cultural gap that allows for better understanding of human experience where culture can be an influence in this case of health and illness (Barton, 2004). Storytelling can be used to assist in holistic practice to facilitate family healing. This can be done in a variety of settings. This is accomplished through being present to the person in the entire context of the individual experience such as the body, mind, emotions, and spirit (Tuyn, 2003).

In a qualitative study, seven tape-recorded interviews of family members were conducted. Participants were asked the question of “what did you go through during a difficult hospitalization?” Analysis was performed using open-coding and then used analogies, family frameworks, and narratives to help understand the data. Findings included that “working through” described the process individuals used to try to reconstruct their world that had been torn apart by an illness (Buttery, Eades, Frisch, Giguere, & Mountjoy, 1999). Storytelling allowed the families to “work through” both their trauma and their experiences during a hospitalization.

Storytelling is an ideal method for gathering data to be used with children because it gives children of any age, the opportunity to provide information. Stories have a great advantage because emotions can be expressed and the entire picture concluded of what is important.

Storytelling (narrative inquiry) is an established research method that has emerged from over twenty years of studying teacher knowledge by Connely and Clandinin (1985, 1994, & 1995). This approach in education has focused on personal storytelling and
asserts that what we know comes from telling each other stories of educational experience. Our experience with the education process also involves myths that surround us and are embedded in our social interaction (Webster & Mertova, 2007). The social interaction role cannot be ignored. We demonstrate what we see. We learn by what we hear or are told in stories. This is particularly so for certain cultural groups who explicitly rely heavily on storytelling to teach the youth lessons of education and about life.

This research is grounded in Dewey’s (1938) philosophy that experience and education are linked. Dewey claims that every experience is a moving force. The education experience is based in a social context of how a child learns. By “living in the world” it means that one lives in a series of situations and what is learned is dependent on the type of interaction that occurs while learning. This concept of learning and in what situation or under what circumstances is considered inseparable. Social context or control cannot be ignored for it impacts on the free will of a child to experience and learn (Dewey, 1998). For example, if a child grows up in a rigid structured environment, this may impede their learning because it limits the experiences the person may have. However, if a child grows up in an open and flexible environment, learning is enhanced by the situation being open, non-threatening, and the child is free to experience things and learn. Social context and social environment is crucial in learning. This may also be applicable to how a child learns in the hospital environment. If we allow the child to explore in an open and non-threatening environment, they will learn. If we control the environment and do not allow the child to ask questions, or express fears, no learning may occur. Environment is crucial to learning. It is the burned child’s experience we seek to understand.
Gough (1997) is an Australian proponent of storytelling (narrative inquiry). He sees storytelling as being emancipatory. He asserts that we give meaning to ourselves and others in the world through stories of which we may be unaware and take for granted. Reflecting critically on the stories we read, hear, live, or tell, may help free us to understand how we might use these stories more creatively to free ourselves from their constraints. Gough (1997) views the story as being more subtle instances of thought and feeling which are not readily available in other forms of research (Webster & Mertova, 2007).

Compelling reasons to using storytelling as a research methodology comes from Grumet (1981). She proposes that stories provide a pipeline to our underlying attitudes, choices, and values that might be otherwise invisible to use during our daily life existence. She sees this method as conspicuous in two ways: First, the relationship of the story allows through reflection our mind to wander which then provides rich descriptions in order to situate the story; and second, as one analyzes the story, interests and biases that are perhaps hidden in the normal course of daily living can be revealed for further inspection.

Storytelling is an ideal method to be used with children because it gives children of any age, the opportunity to provide information. Stories have a great advantage because emotions can be expressed and the entire picture drawn of what is important. Clandinin (2007) notes that many disciplines are turning to storytelling (narrative research) for several reasons including: (1) seeking a change in the relationship between the person conducting the research and the person participating as the subject or participant, (2) moving from the use of numbers to the use of words as data, (3) changing
from the focus of the general and universal to that of the specific, and (4) widening acceptance of alternative epistemologies or ‘ways of knowing. In further exploring the narrative paradigm by disciplines, psychology has been paying increased attention to stories over the last decade (Sarbin, 1986). Howard (1991) argues that all thought is a story whereas others feel stories are a distinctual form for the expression of human events (Bruner, 1986). Methodologists have argued that stories are useful because they illuminate human meanings (Polkinghorne, 1988). Social constructivists argue that individual identities derive from social narratives (Gergen, 1985; Sampson, 1985) while cognitive scientists believe that stories are the primary form for cognitive organization (Schank, 1990). Psychoanalysts have examined the fictitious quality of stories (or narratives) during psychotherapy. This is in contrast with their earlier beliefs that memories and insights reflect vertical representations of the lived experience (Spence, 1987). Lastly, family therapists claim that problems in families grow out of particular ways that experiences in stories are told (Anderson & Goolishian, 1988; White & Epston, 1990).

Storytelling and narrative research is sensitive to the human understanding and often brings to the forefront issues that are hidden by traditional, empirically based research methods. Narrative inquiry may present an appropriate educational design for complex, technological learning environments whereby highlighting learner issues, such as children with burn injuries, can be addressed and possible strategies identified that will support learning and performance by the children (Webster & Mertova, 2007).

Storytelling and narrative research as a qualitative method goes farther to investigate complex human-centered issues. Quantitative methods tend to overlook
complex issues because they are not well suited to examine these issues of cultural and human centeredness in research. Since narrative inquiry is set in human stories, it provides the researcher with a framework in which they can investigate the ways humans experience the world which is depicted through their stories (Webster & Mertova, 2007). According to Bell (2002), “narrative inquiry rests on the assumption that we as human beings make sense out of random experiences through creating stories of the experience. We select the parts of the experience that we believe and we pattern those chosen parts that will reflect a story or make sense to us. Narrative is not an objective reconstruction of life, “it is a rendition of how life is perceived. It is based on the person’s life experiences and involves chosen parts of their lives,” (p. 3).

Where other research methods tend to share understandings of studied subjects or phenomena during certain points in time, narrative inquiry attempts to capture the “whole story.” Other research methods frequently omit the stages that intervene in the entire human experience that are so important to understanding the entire life experience (Webster & Mertova, 2007). Inevitably the entire life experience will indeed play a part in the individual’s experience as asserted by Dewey that experience and learning are linked (Dewey, 1998).

The question of validity arises in storytelling and narrative inquiry. Empirical research methods regard tests and measuring instruments the best tools for validating research findings and establishing rigor. Narrative research does not strive to produce conclusions of certainty, but aims for findings that are well grounded and supportable by maintaining the emphasis on the reality of the human experience (Webster & Mertova, 2007). Narrative research does not claim to obtain the exact truth, but aims for the
likeliness of being true or real. As Karl Popper stated, we can at best demonstrate the falsity of statements, not their truth or verisimilitude (Popper, 2002). Therefore conclusions of narrative research generally remain open ended (Webster & Mertova, 2007). Another issue with validity pointed out by Polkinghorne (1998) is that statistical results are reported as significant or important without appreciating the fact that they were most likely chosen by chance of a sample representative of the entire population. In narrative research an issue is significant if it is important. In addition, reliability is used differently. In quantitative research reliability refers to an instrument ability to measure what it is supposed to measure repeatedly or on successive usages. In narrative research reliability refers to the trustworthiness of field notes (Webster & Mertova, 2007).

2.6 Storytelling and Trauma

Wigren (1994) believes that the formation of a story is a psychological process. It involves a cognitive-perceptual selection process. During this process, several elements of the internal and external environment are screened to see if they are relevant or “fit.” If they do, then causal chains are made and they are assimilated into thoughts and stories. These stories are remembered. The causes of or consequences from an event or situation is committed to memory as part of a story. These events or stories are organized episodically and conclusions are made by the individual and then processed into memory. The completed story should “make sense” to the individual. If it does not make sense, then disharmony occurs or cognitive dissonance and the story or lesson is not learned or committed to memory.

Trauma disrupts this narrative or storytelling process by interfering with the psychological coordination of the cognitive process and social connections. Wigren
(1994) then asserts that stories formed in the aftermath of trauma are frequently incomplete. This incompleteness is a source of posttraumatic stress. Therefore if we come across an individual who is unable to develop a complete story, we may indeed have a way to screen for post-traumatic stress disorder (PTSD). It is believed that trauma disrupts the social connections and psychophysiological connections that facilitate story making.

Trauma is defined as “an event which is beyond the range of normal human experience” (Bremner, 2002, p. 158). This is most certainly so of a burn injury. Piaget (1936) states that: cognitive understanding depends on assimilating new experiences to previous understandings, or accommodating cognitive structure to create new categories of understanding. Assimilation involves incorporating new instances into what is already known or understood. Trauma is alien to that, and cannot be assimilated. Accommodation only occurs when new information is novel but not threatening (Kelly, 1963). Wigren, (1994) claims the difficulty of processing information when working with the trauma patient can be overcome. Appropriate social supports should be given to help the trauma victim organize and make sense of the experience by creating stories to talk about the trauma.

Important to know is that memory is tied into this process in particular following a traumatic event. “Imaged memory or visual and pictured memory consists of images of the contexts associated with safety or danger, such as sounds, darkness, smells, visual images, and bodily states. Imaged memory can be accessed through drawing” (Hanney & Kozwlowka, 2002, p.39). This is relevant for the pediatric burn patient.

2.7 Storytelling with Children
In exploring the use of storytelling with children, one must have an understanding of a child’s cognitive and developmental level to determine how storytelling can be used. In examining cognitive levels, Hanney & Kozlowska (2002) report that while infants are born with fully functional memory systems they are non-declarative and obviously not capable of speech as well as higher cognitive functions.

For children aged two to seven, cognitive development is characterized by children who are beginning to use symbols such as symbolic play and imitation, drawing or graphic imagery, mental images, and language to represent their experiences and images of others and of events (Piaget, 1951, 1962; Piaget & Innhelder, 1969). The development of declarative verbal memory in which the child is able to remember and articulate events as they happen begins around twenty-eight months of age (Hanney & Kozlowska, 2002). Research has shown that this development is related to the growth of the left brain at about age three (Thatcher, Walker, & Guidice, 1987).

Four year olds are able to tell simple stories of their own or others and events are relayed in the order they occur (Owens, 1984). Representation of the self which is the ability to represent one self using a picture of themselves or a doll begins around the ages of 3½ to 4 years of age (Hanney & Kozlowska, 2002). Five year olds have a good temporal sense and understand words involving time like yesterday, today, and tomorrow (Owens, 1984).

From around the age of seven, “operational thinking” according to Piaget is the ability to see things from more than one dimension of a situation or from more than one angle. During formal operations from ages ten to twelve children are able to think abstractly. They are able to think beyond the here and now (concrete) and imagine
alternative options in particular situations or other ways of doing things. All of these stages of development are affected by children when anxious. Trauma further affects their response to stress which accentuates problems. Young children who are traumatized are frequently unable to discuss feelings and events that happened to them. They may experience the “emotional shutdown response, (Owens, 1984)” This is where the use of art and storytelling may aid them in conveying both feeling and emotion.

Stadler and Cumming-Ward (2005) discuss how teachers can support the story development of young children by using strategies to support labeling, listening, connecting, and sequencing. In addition, teachers who recognize children’s developmental needs can assist them to develop stories at a higher cognitive level. Muro and Kottman (1995) suggest that storytelling works best with children who are at least in the second grade. According to Piaget, school-aged children (age six and older) are in the Concrete Stages of Development (Piaget, 1999).

The use of art allows for symbolic representation of oneself, others, and feelings. Events and specific sequences allow children to express themselves more clearly through art than with words. Gabel (1984) developed the “draw a story game” in order to engage children in therapy by combining art and storytelling. This technique was used by Winnicott (1971) and Gardner (1975). Much of this type of work has been centered on therapy for helping children deal with traumatic events (Hanney & Kozłowska, 2002).

In looking at children’s experiences with storytelling, young children begin with the experience of stories before they can actually speak. When they are told a story, young children assume a passive role to the storyteller. As children develop further, they take more of an initiative by providing one-line phrases, repeat phrases they heard, or say
an emotional quote. They may also tell rehearsed stories from storybooks. The pictures in stories provide a way for them to access the narrative sequence before they can actually read. Children who are in a storytelling environment have been shown to benefit from the effects on story learning and on early literacy (Waller, 2006, Brown, Cromer, & Weinberg, 1986; Dickinson, 1991; Hiebert, 2005). An interesting nuance is to understand picture storybooks of children. Agosto (1999) shares that most children’s picture storybooks are told twice: once through pictures and once through words. Vandergrift (1980) referred to these books as “twice told tales.” These stories employ parallel storytelling since they tell the same story. Agosto (1999) asserts that there is also interdependent storytelling. In these storybooks the reader must consider both forms of media (picture and words) concurrently in order to comprehend the book.

Children’s stories are “in the current moment.” Children talk about what is happening or what they want to feel, in the moment. They live in the immediate context (Johnston, 2008). In order to help children to connect, there are three major sorts of narratives and fictional stories: scripts, person experience narratives, and fictional stories. Scripts involve dialogue. Personal experience narratives are often arranged around a “high point” in the story and include an event. Fictional stories involve fantasy or inventive imagination (Johnston, 2008).

Location is another consideration with storytelling. Much of the available research with children’s storytelling has been conducted in schools or with families. Casla, Povenda, Rujas, and Cuevas (2008) examined the use of storytelling in the location of a library, a park, and a children’s bookstore in Madrid (Spain). It was felt that all three of these areas enhanced the literature socialization of children. Importantly noted
that the children in this study were that of a predominately middle-class background with relatively high levels of formal education. So to make an impact on children who are deemed “at risk” and of lower socio-economic status the reading events must be deemed important enough to make them part of their weekly routine. This because of location and accessibility may be problematic. Also noted is that the children are in the passive role of listening to stories and not actively taking part of making or telling the story, just as the position children are placed in when a patient in the hospital.

It is important to remember that children’s position in our society means that they are often seen as unreliable and/or incompetent when compared with adults. Children are people too, and their stories or experiences need to be taken as seriously as adults. Children are very perceptive and can tell the difference between people who remain distant from those what are willing to engage with them in reciprocal conversation. This is especially so when the child is a patient in a hospital (Carter, 2004). Children can learn to share their experiences both real and imagined through storytelling. These creative experiences can help children heal (Glazer & Marcum, 2003). Children who share their stories of pain offer us a unique entrance into their inner lives. They trust us to listen to their stories. Children’s stories provide an important way for them to express something that is difficult for them to articulate such as pain. It is important to listen to and notice the things that children perceive as important. Children telling stories of their pain allows us to understand the landscape of their pain more deeply than a pain scale would. The use of pain stories involve the practitioner verses being somewhat disconnected in assessing pain using a numeric pain scale. It is important to realize that stories are not permanent.
They shift and change as the child’s condition does. Stories never exist in isolation. They incorporate all of the people and experiences around them (Carter, 2004).

Woodgate & Denger (2003) used a constant comparative method in grounded theory to explore and describe the symptom course in childhood cancer experienced by children and their families. This qualitative method used a purposive sample of 39 children and their families. Data collection methods were both formal and informal interviewing and participant observations. A substantive theory “Children’s and Families’ Lived Experience of Childhood Cancer evolved from this endeavor. The theory shows the trajectory of cancer was related to the changing symptoms that children experienced. The six transition periods noted were: (1) it’s just the flu; (2) it is more than the flu; (3) it hits home; (4) it is nasty; (5) it is not so bad; (6) it is “dragsville.” Also found were that the roles and responsibilities of the family changed in correlation to the transition period through which the family and child was passing.

Storytelling was used to facilitate a program to empower students and did decrease the incidence of alcohol and marijuana use in high risk youths aged 11-15 in Arizona (Nelson & Arthur, 2003). This intervention study used stories as positive peer pressure examples to keep these students away from this negative behavior and did make a positive outcome. The “storytelling powerbook” was the core component to this outreach program which had activities that were delivered over a four month semester. This curriculum is available from the WHEEL Council. The sections of the power book included: Knowledge Power, Skill Power, Personal Power, Character Power, Culture Power, and Future Power. Contact hours for each level of the intervention were calculated monthly based on student records from sign in logs for each session and then
summed to arrive at total contact hours for each student. There was an experimental group and an intervention group. The study found that there was an overall decrease in alcohol and marijuana use and a positive correlation between the amount of contact hours and decrease in alcohol and marijuana usage (Nelson & Arthur, 2003).

In trying to understand children’s stories, not only does culture play an influence but so do economic classifications. It was found that the working class has different characteristics of storytelling. They told stories of past experiences and produced no-verbal enactments as part of the story. Working class families participate actively in storytelling in their families and communities, and that they felt it was a valued activity. This was true of all ages and sexes. Two-year olds participate routinely in telling about their own past experience. Also found were some used verbs of aggression. They felt privileged in the use of dramatic language and negative story content. Parents felt the need to be open and honest about the hardship of life and sometimes stated the protagonist in the story triumphs over adversity. It was important for those sharing working-class stories to defend their own point of view (Miller, Cho, & Bracey, 2005).

Much use of storytelling with children has been used for testing cognitive ability or psychological analysis. The Manchester Child Attachment Story Task which is a semi-structured assessment of children’s attachment representations was used with 113 children to see if clinical correlates and predications from attachment stories in early school-aged children. Significant associations of modest to moderate magnitude were found between attachment narrative scales, indexing security, coherence, and disorganization with multiple indices of children’s behavior and emotional adjustment.
Stories were viewed as a way of providing a window into the children’s internal worlds that is otherwise difficult to ascertain (Futh, O’Conner, Matias, Green, & Scott, 2008). The MacArthur Story Stem Battery and coding system were also used to measure potential behavior problems in children. Content themes from play narratives of 652 twins in a non-clinical sample were examined. Girls were found to tell more coherent stories with less aggression than boys. Aggressive themes were found to correlate with behavior problems as in previous studies. Children who told repeated aggressive/incoherent narratives had more behavior problems than those who did not show this story pattern. It was concluded that the gender, content of the story, and coherence of the story provides useful information in indentifying children at risk for problem behaviors (vonKlitzing, Kelsay, Emde, Robinson, Schmitz, 2000).

Children with language disorders have problems with understanding and producing stories. Narration is an important tool for academic, social, linguistic, and cultural learning. A new criterion referenced narrative scoring system called the Index of Narrative Complexity (INC) was used to evaluate changes in a variety of narrative skills. This tool correlated highly with the Test of Narrative Language (TNC) tool. The authors feel that this is support for the use of the INC tool (Peterson, Gilliam, & Gilliam, 2008). A pilot study was done by McGrath, Taylor, & Kamen (2004) to assess qualitative changes in verbal fluency, length of utterance and sentence formation in three, four, and five-year olds who were actively involved in a preschool storytelling program found a displayed improvement in language skills after the four week program where storytelling was implemented. It was concluded that “increased exposure to storytelling may foster emergence of more advanced stages of language development,” (p. 11).
An intervention study of adolescent children with autism was done to enhance the skills needed in both planning and writing stories. Since autistic children require augmentative and alternative communication strategies, the instructional method of technological support, explicit instruction, modeling by the clinician and peer, prompting, and written support provided by peer scaffolding yielded these were indeed promising strategies for children with autism to enhance written narrative skills (Bedrosian, Lasker, Speidel, & Politsch, 2003).

In utilizing medical diagnostic testing, a large-scale study of narrative comprehension using functional magnetic resonance imaging (MRI) was performed using children 5-19 years of age. The results found that functional MRI evidence supported the presence of bi-directional connectivity between the frontal and post-temporal regions of the brain for narrative comprehension (Schmithorst, Holland, & Plante, 2007). We are able to learn from this diagnostic imaging how the process of thinking to form a story and understanding a story relates pathophysiologically to the human brain.

It is a very technologically driven world today. Young children become very adept at using the computer at a very young age. Madden, Chung, & Dawson (2008) encourage the use of computer software to allow children to sequence still images to build parts of a story. A comparison was made to computer cartooning and paper cartooning stories. The software computer-made stories showed more action and interaction than those children developed on paper. It was noted that the children who made software stories put a longer amount of time into planning the story than children who used paper and pencil. The children were noted to be completely absorbed into the computer process verses those using paper and pencil. It is suggested that the software
engaged more children and reached them in positive ways particularly the children like the ability to “edit” their stories and change things with ease as compared to working with paper and pencil. It was also found that using cartoons produced with software was found to be quite different to their paper counterparts. These stories showed a greater variety of character action, pose and interaction, and more variety of camera shots, distance, and a greater use of pictures (Madden, Chung, & Dawson, 2007). This provides very interesting and relevant data in reaching children today. Children are more technologically savvy and like to work and make stories using that technology.

2.8 Gaps in the Literature

The literature retrieved about pediatric burn patients is vast and focuses mostly on morbidity and mortality data, type and causal factors of burns by age group, care issues, and the location where burns occur. There are suggestions that burn prevention should be provided (Rawlings, Khan, Shenton, & Sharpe (2007) but Hockenberry (2004) discusses the importance of burn prevention and education must be provided at an appropriate developmental level to facilitate understanding. While there is burn prevention materials available for children no tool has been found in the literature that teaches children about their burn injury. Only one study done in Canada provided a burn discharge teaching book. This study however examined burn-care-related knowledge of caregivers which was not significant. Children were not included in the discharge teaching (Jenkins, Blank, Miller, Turner, & Stanwick, 1998).

The literature using art and storytelling with children in hospitals is somewhat limited. There were studies located that use both art and storytelling as a therapy tool. Art is frequently used to assess cognitive functioning or as a means to help children who have
been abused. Only one study was found using art and storytelling in evaluating a child’s
hospital experience (Macfayden 2004). This area is beginning to grow as a way to help
children who may have been traumatized from a sudden physical trauma. No studies
were located using art and storytelling in evaluating teaching pediatric teaching tools in
children since no pediatric teaching tools were found.

In summary, pediatric burns account for one-third of all burns reported in the
United States (Mertz, Schrand, Mertens, Foote, Porter, & Regnold, 2003). Pediatric
morbidity and mortality data suggest a need for burn education and prevention programs.
Different causes and types of burn injuries affect the outcomes of pediatric burn injuries.
Often long periods of physical rehabilitation are required after a child suffers from a burn
injury. While positive outcomes are increasing from newer treatments and technologies
for pediatric burn patients, educating pediatric burn patients has remained stagnant. The
problem identified with educating pediatric burn patients is the difficulty adults have in
communicating with children at their developmental and cognitive level. Also, the
literature presented shows there is a definite need for developing age-appropriate
teaching tools and to include them in teaching about after-care and prevention of burn
injuries. Psychological sequelae is also important to address with children with burn
injuries, and not to ignore them. Effective communication strategies are shared by Brown
(2004). Few studies were found that deal with communicating with children (vanDulmen,
1998). As noted, just one study examined using a discharge teaching book (Jenkins,
Blank, Miller, Turner, & Stanwick, 1998), but that study focused on the caregivers, not
the children.
The way to communicate with children is not that elusive. Art and drawing has been recognized as one of the most important ways that children can express themselves and has been linked to the expression of both personality and emotion (Malchiodi, 1998). It would reason that providing children with a picture book would also enhance understanding for children. Learning should also be fun. This was the impetus for the development of The Pediatric Burn Book©. Teaching tools for children about pediatric burns is limited. However one cannot assume that the teaching tools developed for children actually teach. Therefore the purpose of this study was to determine if children learned or retained anything from The Pediatric Burn Book©.

Art also provided the method of understanding if learning or retention of burn facts occurred. The literature shows the support of using art or children’s own drawings as a window into their inner feelings to allow them to tell a story about their pictures to share with us what they really need and want to know. Viktor Lowenfeld’s (1947-1987) work will provide a basis for understanding children’s art from a developmental level; art alone may not yield accurate interpretations of what children are thinking. Storytelling, where the child tells about their drawing will put into words what children are trying to express in their drawing. This was found to be very helpful in the healthcare environment. Art to this point was primarily used to determine cognitive levels, and in psychological therapy, art can also be used to teach and learn from children. While storytelling or narrative pedagogy was first noted to be introduced by Nancy Diekelmann, (2001) storytelling was found in the literature to be used in numerous ways with both adults, and children.
The gaps in the literature point to the need for developing developmentally sound teaching materials for children. As noted, no pediatric teaching tools were found for pediatric burn patients, despite numerous studies suggesting the need for age-specific teaching tools and how useful art and storytelling are in being able to effectively communicate with children. *The Pediatric Burn Book®* hopes to provide this much needed age-specific teaching tool.
CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter will address the methodology which was used in this study. The chapter begins with a description of the design, followed by a description of the sample, participant selection criteria, setting, recruitment procedures, and data collection procedures. The chapter concludes with a proposed plan for data management and analysis, and ethical considerations.

3.2 Design

This study used storytelling in the narrative tradition and interpretive phenomenology to better understand if pediatric patients with burns are able to learn about their burns after reading a book designed to teach children about their burns. This study also assessed whether children can express what they have learned through drawing a picture and telling a story about their picture. The Pediatric Burn Book© is a coloring and education book authored by this researcher. It was used as an age-appropriate learning tool. The child was given the book. The researcher read it to them. They were given time to color in it if they chose. They were then asked to draw a picture of themselves since their burn injury. The child had to include themselves in the drawing. The child was then be asked by the researcher to tell a story about their drawing. This conversation was audio-taped. The audio tape was transcribed verbatim and was then analyzed to look for meaning units that the children share about their burn injury. These
meaning units were then grouped into themes. These themes were then compared to the main education points in *The Pediatric Burn Book*© to see if there is a correlation between the identified meaning units and themes to determine if the children recalled or learned any of the seven education points described in the coloring and education book.

### 3.3 Sample

The target population for this study was children aged five through ten who were admitted to the hospital and receiving treatment for second or third degree burns. First degree burns were excluded since they are rarely admitted for treatment and if they are admitted, the length of hospitalization is very short. Children with second or third degree burns frequently require more intervention and are in the hospital for longer periods of time. Children who are school-aged are open to forming relationships with adults and learning from them. Educating and teaching the child what to anticipate and involving them as the expert of their own care can greatly reduce the child’s experience of pain and anxiety (Dise-Lewis, 2001).

Children were excluded if they have burns to their hands because use of hands to draw is essential to the nature of this study. Participants must be able to read and speak in English. The participants were recruited from an eastern Pennsylvania, Level I Trauma Center which is also a Pediatric Burn Center. The researcher initially sought ten to twelve informants or until saturation has occurred. The child must be stable and physically be able to participate in the study. The study included 20 participants.

Participants, who are unwilling or unable to read and color in *The Pediatric Burn Book*© and then color a picture of their own afterward, were excluded from the study. Also those patients who do not meet the inclusion criteria were excluded from the study.
Sampling Criteria

Participants were included in this study based on the following criteria:

- They were school-aged children from 5 years to 10 years of age
- They sustained second or third degree burns and are receiving treatment for their burns on an in-patient basis
- They have a parent or caregiver present
- They had a hospital stay of two or more days

Sampling Method

Purposeful sampling was used in this study. According to Polit & Beck (2008), purposeful (or purposive) sampling involves, “hand-picking cases that will benefit the study” (p.355). Creswell (2003) goes on to state that purposeful sampling “allows the researcher to select participants or sites that will best help the researcher understand the problem and the research question” (185). In this study, the researcher interviewed pediatric burn patients and gave them an age-appropriate educational coloring book. A pediatric burn center is the ideal place for the researcher to obtain the sample needed because typically more burn patients with second and third degree burns are referred to a pediatric burn center. Miles and Huberman (1994) suggest four important aspects to be examined when obtaining a sample. They are: (1) the setting, (2) the actors, (3) the events, and (4) the process. In this study the actors or participants were school-aged children aged five to ten with the event being they experienced a second or third degree burn. The process was being read and coloring in The Pediatric Burn Book©, asked to color a picture of themselves since the burn injury, and then tell the researcher a story about it. Analysis included looking for similarities in what the
children said in their “story,” they tell about their pictures, and if any of these items are education topics contained in *The Pediatric Burn Book* ©.

3.4 Location

The setting was a Level One Trauma Center and a Burn Center in an Eastern Pennsylvania teaching hospital. Children with burn injuries are admitted to the Pediatric Intensive Care Unit (PICU), in-patient pediatric unit, or adult burn unit in this institution. The interview was conducted in the child’s hospital room in one of the above mentioned places or in the burn recovery center.

The children with a burn injury are admitted to the in-patient pediatric unit which consists of 28 beds. This in-patient pediatric unit cares for all children with pediatric injuries or illnesses. The PICU consists of 8 beds. Children are also admitted to the adult burn unit with a designated area for pediatric patients. The children follow-up in the Burn Recovery Center. Permission has been obtained to use these sites. Support for this study is given by the patient care director, patient care coordinator, patient care specialists of each unit, the child life specialist, the in-patient pediatricians or hospitalists, the PICU intensivists, the burn team, as well as the nursing staff.

3.5 Data Collection Tools

*The Pediatric Burn Book*© is the teaching tool that was used. This book was developed by the researcher as an assignment during graduate school in 2004. The impetus was because the researcher works with pediatric burn patients and realized that there are no tools available to teach children at their level of understanding. The book has pictures which the child can color which are about important facts to remember about caring for their bodies since they have been burned. For example, there is a picture of a
child riding a bicycle with a statement below saying that it is important to get exercise and stretch your muscles even though your skin has been burned. This book was presented to the education department at the eastern Pennsylvania teaching hospital where the study will be done. The education department and the burn team approved its usage for the young patients in the hospital. This book has since been copyrighted by the researcher.

A demographic tool was developed by the researcher to describe the population. The data was entered into NVIVO 9, the data management system which helped the researcher identify meaning units. The researcher recorded the child’s age, gender, race, type of burn injury such as scald, flame or chemical burn and physical location of the burn injury. The percentage of body surface area (BSA) involved was also recorded and included in the demographics. This information was used to describe the population understudy.

3.6 Recruitment and Data Collection Procedures

IRB approval was obtained, recruitment activities began by educating the staff about the study. The researcher met with the charge nurse, patient care director, patient care specialist in each unit as well as the child life therapist and burn nurses who identified participants for the study. A list of specific inclusion and exclusion criteria was given to the pediatric and burn core charge nurses and child life therapist. The study procedure was reviewed with each individual nurse and team member and opportunities were given to answer any questions. Fliers which include the criteria for the study were posted in the medication room of the PICU, the in-patient pediatric units, and the burn
unit for the nurses’ for ease of reference to assist the charge nurses identify patients for this study who may arrive on the off-shifts (see Appendix C).

Once a child was admitted to the pediatric in-patient unit, PICU, or burn unit meeting the given criteria, the burn nurses or nurses obtained permission for the researcher to contact the family and explain the study (Appendix B). This was a requirement of the hospital so that participation in this study was of free choice and that the children or parents did not feel pressured by the researcher to participate. Once this permission to meet the family and discuss the research project was obtained, the researcher was then contacted by phone at any hour of the day. The researcher then called the unit where the child was a patient and spoke with the child’s nurse to arrange an appropriate time to meet with the parents and child. Upon the researcher arriving at the hospital, she first spoke with the child’s nurse to ascertain if the child has adequate pain control, if this was still an appropriate time to meet, and if the parent and child still wanted to speak with the researcher. The researcher then reviewed the child’s chart to document demographical data listed earlier. She then approached the child and their caregiver to determine if they were still interested in participating in this study. After all questions from the child or parent/caregiver were answered, the child assent and parental/caregiver consent was obtained (see Appendix A). The researcher then gave the parent/caregiver an opportunity to ask questions about the consent. Once the parent/caregiver signed the consent, the child was asked to sign or write their name or a mark on the child assent for included in the consent to participate form. The parent or caregiver was then told they could be present for the coloring and storytelling session if they would like to. The researcher then spent a few minutes introducing herself and
attempt to establish a rapport, gain the child’s trust, to make the child feel comfortable before beginning the session. The researcher then suggest read *The Pediatric Burn Book*© to the child. The child was then given the opportunity to color some of the pictures in the book. Directly after they finished coloring in the education and coloring book if they chose to, the researcher asked the child to draw a picture of them since their burn injury. The child was told they must be in the picture and that they could include anything they wanted. The child was given a drawing pad and colored markers to color the picture and told they could keep after the session is over. They were also told the only thing the researcher needed was the picture when they were done. If the child wanted a copy of the picture, they were told the researcher would provide one for them. No child wanted a copy. All the children gave the picture they colored to the researcher willingly. Field notes were taken noting responses or behaviors during the coloring session. The researcher either continued to speak with the parents during the session or offered to come back in a few minutes so that the child did not feel pressured during their coloring session. When the picture was complete, the researcher then asked the child to respond to the question, “Tell me about your picture.” This allowed the child to tell in their words, in their own time about the picture they drew. If the child was reluctant to talk the researcher prompted them with a question of “Is there anything you remember about what we talked about today?” These responses or “stories” were tape recorded. The researcher then went home and transcribed the tape recorded session verbatim. Common threads or meaning units were then identified after repeated listening to the tapes and reading the transcript to see if correlations existed between what they drew or said. All of the tapes and the pictures will have all identifying markers removed. They were identified
only by number. They were stored in a locked file cabinet in the researcher’s home where only the researcher will have the key. This is similar to what Polit and Beck describe as a “photo elicitation interview” except the child’s picture is the impetus of discussion verses a photo. Polit & Beck (2008) describe photo elicitation as a method that can break down barriers between the researcher and the participants. It can promote a collaborative discussion.

The researcher also kept field notes in the margins on the transcriptions and added to the bottom of the transcription as each participant was seen. This assisted the researcher in remembering and gaining an understanding in addition to the tape recorded session when the child described their drawing. According to Polit & Beck (2008) field notes represent “the participant’s observer’s efforts to record information and also synthesize and understand the data” (p. 405). The notes will include information such as nonverbal behaviors, actions, and information or circumstances about the setting during the interview session. This included behaviors by the participant or parent/caregiver which might impinge on the data. In addition, the researcher will identify areas or comments by the participant or parent/caregiver that may require additional discussion or clarification. The field notes will also be utilized for conscious rising of the researcher’s possible perceived biases or suppositions of what may or may not occur during the interview session.

In examining these systematic methods of observing children doing art, this study used a direct approach in that the researcher was present throughout the entire art activity if the child wanted to offered to leave if the child preferred. At the conclusion of the
drawing and storytelling session, the researcher thanked the child and parent for participating in the study and wished them a quick recovery.

3.7 Data Management and Analysis

A phenomenological-hermeneutic approach based on the work of Ricouer (1976) was used to explore children who suffered a burn injury’s stories. This method combines a phenomenological philosophy with the method of hermeneutics which is interpretative theory that analyzes narratives or stories as the object of the inquiry (Polit & Beck, 2008). This method has been adopted for nursing research at the Department of Advanced Nursing, University, Sweeden; and at Department of Advanced Nursing Tromso University, Norway (Rydstrom, Englund, & Sandman, 1999). The method has been used to analyze children stories of living with asthma (Rydstrom, Englund, & Sandman, 1999) and with school-aged children’s fear of medical care (Forsner, Jansson, & Soderberg, 2009).

Ricoeur (1976) describes the interpretation of text or stories as a dialectic process where one moves from understanding to explanation. One then moves from explanation to comprehension. This phenomenological hermeneutic approach involves a dialectical movement between the whole and the parts of the text. This is between understanding and the explanation and what possibilities are opened. It consists of three phases: naïve understanding, structural analysis, and comprehension understanding (Forsner, Jansson, & Soderberg, 2009). The researcher’s naïve reading of the text (or in this case text that is transcribed from their story about the picture they had drawn) is to first try to acquire a sense of the whole, a first guess related to the aim of the study. This naïve understanding may require several readings of the transcribed text, and listening to the audio recordings.
In the next step the information obtained will be organized using a structural analysis approach (Forsner, Jansson, & Soderberg, 2009). Here the sense of the whole is obtained from the naïve reading is either then validated or rejected. In this step the text is read many times to identify “meaning units.” These “meaning units” can be one or more sentences that are related through their content. These meaning units are organized by subthemes and then condensed into overall themes. The units were considered from the view of what they told about their picture which may or may not have centered on one of the education topics presented in The Pediatric Burn Book© and arranged into subthemes and themes. For example, one unit might be the recognition of exercise as an important thing for children who are burned. Another unit may be the child returning for a follow-up doctor appointment, and how important that is. Yet another unit may be the child simply using protective sunscreen or a hat when they are outside on a sunny day to protect their skin. An “other” section will be provided for any meaning unit that does not relate to the education themes identified in the book. In the last step, comprehension understanding, the text is again perceived as a whole where the aim of the study, the naïve understanding, the structural analysis, and the researchers pre-understanding is taken into account and interpreted in light of a theoretical framework. This is what leads to a comprehensive understanding of the findings.

After the child finished their picture, the researcher asked the child to “tell me about your picture.” The child’s response was tape recorded. The tapes were then transcribed by the researcher verbatim. All common threads or themes were then entered into a computer software management system, NVIVO 9 to organize the data. After examining all the data, the researcher identified meaning units given by the children
through their responses. They were numerous and then condensed into common meaning units. After long reflection the meaning units emerged into three common themes. These themes were noted. The themes identified were compared with the main education topics in *The Pediatric Burn Book*© and correlations were made between the child’s responses and the education topics present in the book, for example riding a bike signifies the importance of exercise for the child. It was one theme that consisted of several meaning units that correlated to education topics present in *The Pediatric Burn Handbook*©. Two themes that did not correlation to the education topics were also recorded. There were no critical events the children identified. Other items mentioned or identified that do not relate to those in *The Pediatric Burn Book*© were noted and gave the researcher paths for future research. It is given that all identifying markings on the drawings and during the transcription process were removed and the data will be kept secured by the researcher in a locked file cabinet in the researcher’s home. No child wanted to keep a copy of their picture.

The demographic data was obtained, compiled and presented in a table format. The data will include the child’s age, gender, race, type of burn injury such as scald, flame or chemical burn, physical location of the burn injury, and the percentage of body surface area (BSA). Raw data and mean averages will be calculated and presented. All identifying information will be removed and fictitious numbers were used for each drawing and corresponding data.

3.8 Human Research Subject Protection

Human participant protection will be of utmost concern during the process of this study. According to Polit & Beck (2008) informed consent is described as “participants
have adequate information regarding the research, are capable of comprehending the information, and have the power of free choice, enabling them to consent to decline participation voluntary,” (p. 176). Since children are a vulnerable population, informed consent was obtained from their parent, caregiver, or legal guardian (see Appendix A). Children who are older than five years of age will be asked to give their assent. This was included on the consent form. Their assent refers to the child’s affirmative agreement to participate. This is to gain trust and value and respect the child’s right to self-determination. Participants were made aware that they can withdraw from the study at any time. There was no perceived risks associated with this study, however if the child becomes upset at any time during the study, the study would be stopped and support will be obtained for the child by the certified pediatric child life therapist who is on the pediatric floor. This did not occur. In fact the researcher was able to assist staff members in providing assistance when a child was acting out and assisted in gaining the children’s trust. No further assistance was needed and the child’s in-patient pediatrician was not contacted. In one case information was provided to the staff to perhaps obtain a consultation with the social worker or to the psychiatric liaison.

The identity of the participant or their family was not released at any time during the study. A number was used as an identifier for each child participant. All written materials, pictures, consent forms, and audio tapes were stored in a locked file in the researcher’s home. Audio tapes were transcribed verbatim with the researcher removing all potentially identifying remarks or comments prior to sharing the data with the faculty advisor, committee chair, or committee members. The researcher transcribed the data personally. Participants and parents/caregiver/guardian were made aware that verbatim
quotes may be used in publication or presentations. In this case the identity of the participant and family will be protected and potential identifying statements or comments were removed. All study materials will be stored in the research office at the hospital as requested by this institutions policy. The researcher destroyed any identifying documents at completion of this study.

In summary, The Pediatric Burn Book© is a coloring and education book authored by this researcher. It served as an age-appropriate learning tool for pediatric burn patients. The target population for this study is children aged five through ten who were admitted to the hospital and receiving treatment for second or third degree burns. The setting was a Level One Trauma Center and a Burn Center in an eastern Pennsylvania teaching hospital. Children with a burn injury are admitted to the Pediatric Intensive Care Unit (PICU), in-patient pediatric unit, or adult burn unit in this hospital. The child was given the book, asked to read and color in it if they so chose to. They were then asked to draw a picture of themselves since their burn injury. The child was then asked by the researcher to tell about their drawing. This conversation was audio-taped. The audio tape was then transcribed and that information analyzed to look for common meaning units that the children share about their burn injury. These meaning units then emerged into three main themes. These themes were compared with the main education points in The Pediatric Burn Book© to see if they were identified to determine if learning occurred. This study did provide important information to tell us if this method of instruction is appropriate and effective for this group of children.
CHAPTER 4

RESULTS

4.1 Introduction

In this chapter, description of the study participants will be presented using demographic data collected from each participant prior to each interview. The researcher read The Pediatric Burn Book © which is a children’s story and education book to children aged 5 to 10 who met the study criteria. The children were then asked to draw a picture of themselves since suffering their burn injury. The child had to be included in the picture. The children then told the researcher about their picture. Their stories were audio taped and transcribed verbatim. These transcriptions were then entered into NVIVO 9. The transcriptions were reviewed multiple times and numerous broad meaning units were identified and entered into NVIVO 9 along with supporting statements or quotes. These broad meaning units were analyzed and condensed into ten basic meaning units. These ten meaning units and their related dialogue were re-read and three common themes emerged from the data. These themes were: 1) Feelings and experiences, 2) Adapting to my life now, and 3) Relating in my world. Further detail of study results will be presented followed by a summary.

4.2 Description of the study participants

The study consisted of 20 child participants who were admitted to a northeastern Pennsylvania level 1 trauma center and pediatric burn center. All participants agreed to be interviewed and parents provided permission. The children sustained a burn injury that was either a second or third degree burn. A total of 23 children were recruited; however,
three of the 23 potential participants were excluded from participation. One because she and her family spoke only Spanish and the coloring book is available only in English at this time. The second was a custody arrangement which made it difficult to obtain consent. Once custody was established, the custodial parent was not in the hospital to obtain consent. Phone consents were not used in this study. The third child was discharged just prior to arrival at the hospital to conduct the study.

The age of the participants ranged from 5 to 10 years old (Table 1). There were 16 male participants and 4 female participants (Table 2). There were 11 Caucasian participants, 6 African American participants and 3 Latino participants (Table 3). The types of burn injuries sustained were 8 scald burns, 2 flash burns, 5 from direct flame, 3 contact burns, and 1 electrical burn (Table 3). Of the eight scald burns they involved 1 from hot soup, 5 from hot water, and 2 from hot oil. The two flash burns involved an accelerant; 1 diesel fuel and the other gasoline that ignited and caused a flash. Of the five flame burns 1 involved a microwave catching fire, 1 involved an accelerant of gasoline that caught fire, 2 involved playing with matches, and 1 involved a candle. The three contact burns occurred with 2 of them coming into contact with the muffler from a 4-wheeler, and the other child coming into direct contact with a hot grease fire. The one electrical burn was a child who was chewing on an electrical cord.

The percent of total body surface area involved (TBSA) is the amount of body involved in the burn injury. This can be estimated using various methods. The more body surface area involved the more severe for the child. Also important is the area involved in the burn injury. The American Burn Association has criteria for referral to a burn center, particularly for children. They are partial thickness or second degree burns involving
more than 10% of the total body surface area, burns involving the hands, face, feet, genitalia, perineum, or major joints, third degree burns on any area, these may require grafting of the skin. Chemical burns, inhalation burns, or electrical burns as well as children who are burned and in a hospital without qualified personnel or equipment to care for their burns, they all need to be referred to a regional burn center especially one who treats pediatric burn injuries (American Burn Association, 2013). The total body surface area involved of the children in this study ranged from less than 5% to 25% burn. There were 12 children with less than 5% TBSA, 4 children with 5-10% TBSA, and 2 with 10-15% TBSA, 1 with 20-24% TBSA, and 1 child with a 25% TBSA burn (Table 4).

The coloring, storytelling, and interviews were conducted in the in-patient pediatric unit, the in-patient burn unit, or the burn recovery center at the Northeastern level one trauma center which is also a pediatric burn center.

Table 1

Age and gender of study participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>2</td>
<td>n=3</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>0</td>
<td>n=2</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>1</td>
<td>n=3</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>0</td>
<td>n=4</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>0</td>
<td>n=2</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>1</td>
<td>n=6</td>
</tr>
</tbody>
</table>

Table 2

Race of study participants

<table>
<thead>
<tr>
<th>Race</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>n=11</td>
</tr>
<tr>
<td>African American</td>
<td>n=6</td>
</tr>
<tr>
<td>Latino</td>
<td>n=3</td>
</tr>
</tbody>
</table>
Table 3
Type of burn injury and gender of study participants

<table>
<thead>
<tr>
<th>Type of burn injury</th>
<th>Male</th>
<th>Female</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>scald</td>
<td>6</td>
<td>2</td>
<td>n=8</td>
</tr>
<tr>
<td>flash</td>
<td>2</td>
<td>0</td>
<td>n=2</td>
</tr>
<tr>
<td>flame</td>
<td>6</td>
<td>0</td>
<td>n=6</td>
</tr>
<tr>
<td>contact</td>
<td>1</td>
<td>2</td>
<td>n=3</td>
</tr>
<tr>
<td>electrical</td>
<td>1</td>
<td>0</td>
<td>n=1</td>
</tr>
</tbody>
</table>

Table 4
Percent of total body surface area (TBSA) of burn involvement of participants

<table>
<thead>
<tr>
<th>% total body surface area (TBSA)</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5%</td>
<td>n=12</td>
</tr>
<tr>
<td>5-10%</td>
<td>n=4</td>
</tr>
<tr>
<td>10-15%</td>
<td>n=2</td>
</tr>
<tr>
<td>15-20%</td>
<td>n=0</td>
</tr>
<tr>
<td>20-25%</td>
<td>n=1</td>
</tr>
<tr>
<td>≥ 25%</td>
<td>n=1</td>
</tr>
</tbody>
</table>

4.3 Study Results

The phases of data analysis occurred with a phenomenological hermeneutic approach that involves a dialectical explanation and what possibilities are opened. It consists of three phases: naïve understanding, structural analysis, and comprehension understanding (Forsner, Jansson, & Soderberg, 2009). The researcher first read over all the transcribed interviews and listened to the audio recordings to try to acquire a sense of the whole and obtain a naïve understanding of the children’s experiences. This required several readings. This information using a structural analysis approach was then organized (Forner, Jansson, & Soderberg, 2009) into several meaning units. These meaning units were entered into NVIVO 9. Meaning units were identified
by finding similarities, frequently occurring language, or child experiences in the data of what the children said. These “meaning units” can be one or more sentences that are related through their content. These meaning units were then narrowed to ten (Table 5).

Table 5

Meaning Units

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Taking care of my body</td>
</tr>
<tr>
<td>2</td>
<td>What happened to my body</td>
</tr>
<tr>
<td>3</td>
<td>Feelings of Fear &amp; Anger</td>
</tr>
<tr>
<td>4</td>
<td>It hurt and I was uncomfortable</td>
</tr>
<tr>
<td>5</td>
<td>Trouble sleeping</td>
</tr>
<tr>
<td>6</td>
<td>What I like to eat</td>
</tr>
<tr>
<td>7</td>
<td>My body itches</td>
</tr>
<tr>
<td>8</td>
<td>Thinking about outside</td>
</tr>
<tr>
<td>9</td>
<td>Being upset with my parents</td>
</tr>
<tr>
<td>10</td>
<td>My experiences with colors or the alphabet</td>
</tr>
</tbody>
</table>

These meaning units and themes were considered from the view of what the children told about their picture. To preserve confidentiality, each picture and child was assigned a number 1-20. All discussion related to either picture or communication is by assigned number only. All other identifying information was removed from the pictures and transcripts. These meaning units will now be described in detail.

**Meaning Unit 1- Taking care of my body**

After reading *The Pediatric Burn Handbook*© many children identified a topic in the book that related to caring for their bodies now since they had been burned. Taking care of my body was the most commonly identified meaning unit. Particularly, many children identified using sunscreen and wearing protective clothes when they go out in the sun and wearing warm clothes to protect their skin in the winter as ways by which they should take care of their body.
Child 12 stated that when he goes outside in the sun he is going to put on a hat, a shirt, and uh an undershirt…and sun block” Child 10 said “when I go outside I have to put on the cream. I need to put the cream on so my face heals good.” Child 15 says he “has to eat healthy…ummm I have to exercise, take vitamins, and put the cream on.” Child 16 states that “when I go outside I can’t wear short sleeves in the sun and all that. I also need to get sleep and eat right.” He also said if “I get a crack in my skin, I have to tell my mom right away and she’ll give me medicine…and come here for your appointments” Child 19 stated when I go outside “I gotta make sure I…sunscreen. Put on gloves and wear a hat and not scratching.” Child 20 says “yeah and wear sun block, and yeah I think that’s all I remember.” He then began to talk about the importance of drinking milk to get his body healthy. He then stated “my mom got me new boots and they are black.” He said this in response to talking about the cold and how important it is to wear socks and boots in the snow. Child 3 asked “what I should do because I am allergic to sunscreen?” He gets a rash. It was shared with his mother to try to find a hypoallergenic sunscreen brand or be sure he kept his burned body parts covered with clothing. Child 2 stated that he learned to “put the cream on, you know when I go outside in the sun, and put the cream on my face so it heals good. When asking Child 7 about his picture his mom said “it’s a picture of the lotion, he copied it from the book.” (see Figure 1). He stated he realized that “I have to take care of my boo-boos.” He also shared that” not scratching” is important.
The next most common item the children identified was eating healthy as a way to take care of their body. Child 11 drew a picture of ice cream in many colors and flavors. She said she likes ice cream and that is important because “it is good for you.” She also drew a picture of chicken nuggets in her drawing and said she liked chicken nuggets “cuz theyz healfy.” Child 12 stated “Well the biggest thing I learned is to eat healthy.” Child 14 stated “That you ahh… have to eat healthy and ummm…. Silence.” Child 15 noted taking vitamins was important. Child 16 stated it was important to “get sleep and eat right.” Child 17 stated “that I have to eat healthy.” Child 18 agreed that eating and drinking healthy were good things. Child 20 was drinking a milkshake when I arrived. When asked what is important about his milkshake he said “sugar.’ When further asking what else is in a milkshake he said “milk” and agreed that milk and protein were very
important for his body to heal.

The next item the children identified about taking care of their body was brushing their teeth. This was particularly so for child 8 who burned his mouth from biting an electrical cord. He was asked about his picture and what was in his hands; he replied “toothbrush and toothpaste.” When asked why he was using that he said, “So I can brush my teeth. That…Uhm, cuz it stuff takes care of your teeth. Cuz if you don’t brush your teeth you get yellow teeth? He also stated I still got baby teeth.” Then when I pointed to the child’s wound on the right side of his mouth, his boo-boo he said “brushing my teeth will make it heal better.” His picture is very clear of the importance he places on his brushing his teeth (see Figure 2), and rightfully so since this child had an electrical burn to his mouth from chewing on an extension cord that was plugged into an electrical outlet. Taking care of his mouth and keeping it clean was very important to him.
Children 16 and 17 mentioned the importance of sleep. Child 15 mentioned exercise being important. Child 4 is the only child in the study who had to wear a pressure garment. While the staff was trying to teach him how important that was in taking care of his body, he being only five years old did not like it. We called it a “spyder man suit”; he still felt it fit him too tightly. When we talked of the bottom shorts being just like sliding shorts that he will need to wear to play baseball, did he finally agree and realize how important the pressure garment was more to prevent hurting his body while sliding into bases while playing baseball.

Meaning Unit 2-What happened to my body?

This was the second most identified meaning unit from the analysis. Even though some of the children did not actually draw a picture of the fire incident, they still wanted
to talk about what happened to them when they were asked to tell the researcher about their picture. Some spoke in great detail and others as a matter of fact. The children who drew a picture of their injury and seemed to have accepted and adapted to their injury will be discussed first. Child 5 drew a picture of herself and noticeably had a purple dressing on her right foot. When asked about the purple dressing she stated “it’s my cast.” She had nothing further to say other than that her favorite colors were pink and purple and she was glad she had a purple “cast” on her foot. Child 6 drew a picture of himself exactly how he looked in the same color clothing he was wearing in the hospital. He stated “that black scarf right there is my bandages. The blue thing is my neck brace, and then I have on blue pants and blue socks.” He was very eager to draw and participate despite having to wear a splint which kept his arm extended at ninety degrees and had a cervical collar on from a physical injury from the 4 wheeler accident. Child 11 described the circles drawn as “it’s my boo-boo.” The other children who spoke in more detail shared events of the entire burn incident describe what happen to them as follows: Child 1 said “Well I was making soup in the microwave and when I took it out, I dropped it and it wound up on me butt and leg as I turned away.” When asked what he did next he shared he yelled for his mother. Child 3 drew his picture of the fire event when the microwave caught on fire from putting something in it with foil on the top. While he shared he was very scared when it happened, he was in his room playing video games. Child 10 drew a picture of himself inside a box or stick-type house. He stated “I have burns on my face…and my leg and I’m inside (the house).” When asked what he colored red around his face and on his left leg he said “That’s my burns.” He did not draw any hair because he had received a hair cut a “buzz cut” very short because of the burns to his
face and head. Child 16 was more detailed in his picture and verbal description of the event. He said “my mom was going to the sink and I was going to the sink and she was carrying boiling water and bam is what happened.” When asked to clarify the word “bam” that is written in the drawing, he said “well that’s what happened, we collided into each other. She started screaming, put me into the shower, and I was trying to get the plates and she was trying to get to the stove, and bam.” If you look at the photo below it is very detailed of the dining room and kitchen set-up and how the accident happened. He not only wanted to describe the event verbally but did so pictorially. This is very common in a significant traumatic event and children tend to “re-live” the event and do have consecutive nightmares about it. Some wake in a startle for days and even weeks after the trauma. Sometimes the children either cry or call out to their parents, sometimes for help in their sleep. Parent’s find that stressful and upsetting and they too re-live the event over and over again.

Figure 3: Child 16 drawing
As did child 15 who was burned by hot water. He was making hot tea for his mother. So when asking him what happened he said: “I am pouring water in the cup and the cup spilled on me.” asked about the expression on his face he said he was saying “It was like ouch yahhhhh ahhhhh ahhhhhh.”

Figure 4: Child 15 drawing
The children who did not appear to adapt to their injury and seemed almost “stuck” at the day it happened or at least wanted to talk about what happened to them are as follows: child 14 was trying to move on but the incident seemed stuck in his mind. He described this incident as follows: “It was ah when the fire started on the stove and then mom that was about right in front of the door, but little like a… a foot away from the door, and then she tripped over me and spilled it a little of it on my arm and then I just ran, uh into a circle and then it just went out then I ran outside. Just like sitting on my back going back and forth, like… (hiccup) inside and outside. I wanted to jump in the pool so I could cool off but she wouldn’t let me. The fire got on me. It was only a little oil, like this much. She forgot to turn off the oven, I mean stove after cooking and the pot stayed hot. No then it caught on fire, ahhh she slapped it with a rag and the rag caught on fire. She threw it on the counter and then washed it off and then she tried to turn on the fan and then um it just got worse and worse. Cuz I don’t know why they have fans cuz everybody knows that wind helps fire. What’s the purpose of even having the fan? And I yeah put my shirt over my mouth so I wouldn’t like breathe in the smoke. Then this over here is me getting my legs
on fire. I said my legs on fire, ahhhh, and then uh my arms on fire…so she was trying to put the fire out and then she just fell on the floor with her arm burnt.” He said it was the first fire in the house and seemed frustrated that they didn’t even have a fire extinguisher. He stated “I don’t know what person wouldn’t have a fire extinguisher like…” He also shared he has been in the hospital five times for various reasons, but this is the worst admission. See his picture below (figure 5).

**Figure 5: Child 14 drawing**

Child 13 reached over a candle on a counter and caught his sleeve on fire. He then ran through the house and the mother caught up with him and swatted out the fire. Why this child is still living this episode is that his mother decided to treat his burn holistically at home. Initially they went to a local hospital that referred them to a burn center for grafting. The mother never took the child because she felt she was not included in the child’s plan of care. So she opted to treat this 2nd and third degree burn at home. They
were from out of state. What brought them to this pediatric burn center was that she learned on the internet that holistic care is done in this facility under the management of the burn team. Plus the wound was not healing. He did wind up needing grafting. So this injury was going on a long time. Child 18 drew a picture of himself sitting in his bed in his hospital room and said he was “waiting for his legs to heal.” His legs and face were burned from a flash injury involving gasoline so he had deep 2\textsuperscript{nd} and 3\textsuperscript{rd} degree burns that required grafting. They lived far away and transportation was going to be a problem so he was going to have a prolonged hospital stay. The child was very flat. Plus with the burns to his legs he had to learn to walk with physical therapy. He didn’t really want to discuss how the fire happened at all. He was stuck in the events of the hospital room and could not and did not want to really talk about when he was going to go home.

**Figure 6: Child #18 picture**

Child 2 did not draw his picture about the burn injury but of himself outside. Although this child, like all the other children who participated in the study, was given colored markers for which to draw his picture, but instead of using them, he asked to draw with a pencil. He said that is what he is used to. This child was having outburst and anger issues,
throwing items, food trays items in his room. He would rip the sheets off his bed. He had a look of rage on his face when I entered the room and told me he would not talk to me. I sat quietly in his room with him for several minutes. He was standing on the window ledge which was very unsafe and was asked to come down and he refused. He was alone. After 30 minutes of sitting in his room he asked me what I wanted. He said he would not talk to me or draw a picture but eventually did as we found some neutral ground, watching “Sponge Bob” together. He then stated, “Well what do you want me to do anyway?” When he was asked to tell me about his picture he told me the basics in the picture. His mother was present for the interview but left before and after for a cigarette before he began to draw. He became enraged and threw anything he could get his hands on and was trying to pull out his IV. I sensed the anger was coming from somewhere and he eventually told me the events surrounding the burn injury. He said he got burned because he was trying to “save his 5 year old brother.” He told me the neighbor kid came into their yard and put a tarp over his brother and poured gasoline on the tarp. He then lit it on fire. When this child saw that he ran over to pull the tarp off his brother and the lit gasoline poured down the front of this child. He had not told this story to anyone of the in-patient burn team. He shared he was angry because he told his mother and she did nothing. Also he was angry because he thinks this boy should be punished. “They should call the cops.” When his mother returned he said “Mom he’s the kid down on the corner in the brown house, dad knows who he is.” The mother dismissed him and ignored him. He said it louder, “mom you know who he is right? You should call the cops.” His mother did nothing, and dismissed him and said “we’ll talk about this later.” He said, “no mom now, he needs to get in trouble for this.” I interjected to the mother that I hope she
realizes her son is a hero, saving his five year old brother from injury. She stood in the room and said nothing. She went about straightening up the room. The child was clearly looking for praise, affirmation, and action by his mother, and sadly did not receive that from his mother at all. His drawing is figure 7.

**Figure 7, Child 2 drawing**

![Child 2 drawing](image)

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**Meaning Unit 3-Feelings of fear & anger**

Child number 1 admitted to being “a little bit scared.” Child 3 said he was scared “it’s all I could see…fire.” When he was asked how he felt while it was happened he said, “I was mad no um sad.” When child 8 was asked if it was scary, his mother replied “yes it was.” When I asked him if he was scared, he just looked at me in a stunned look and had no direct response. Child 12 expressed his fear that it might hurt during a
dressing change. When asked if he was scared it would hurt he said “uh huh.” Child 13
was trying to be brave and asked if it was scary experiencing the fire, he said “well it
wasn’t all that scary.” Child 14 said he was scared, “it was like the first fire in the house.”
Child 15 said “it was kinda scary but when I get used to it.” He was also asked if the
ambulance ride was scary, he nodded his head yes and said “I thought I was gonna reach
here (this hospital) at night. I was scared. I was glad my dad was with me.” In examples of
anger, child 2 stated that “I am angry and I am not going to talk to you” directing that at
the interviewer. He becomes very agitated at his mother not even really trying to figure
out who the child is) “You know mom, the kid that hangs out with (names the name of
another child in the neighborhood).” Dad even knows who he is. He is bad and in trouble
all the time. The child then threw things, tore his bed linens off the bed, and stood in the
corner defiant and angry. The child tried to pull the tape off his IV. Child 14 seemed
angry at his mom because they didn’t have a fire extinguisher, he said: “so… I don’t
know what person wouldn’t have a fire extinguisher like…Now I’ve been in the hospital
five times.” The parent of child 15 shared that the burn dressing change “kinda scared
me.” The medicine his child was given for the re-dress caused him not to know his father
when he woke up. He told his dad he had 4 eyebrows. This concerned and actually scared
the father.

Meaning Unit 4-I hurt and it was uncomfortable

Child 6 was asked if it hurt with his sling and shoulder immobilizer on, he said,
“Yeah kinda, it gets in the way.” When he was asked if he has any pain, he said: “No I
am pretty good, only when I move my arm like this (he moves his arm up in the air) it
hurts.” Child 13 said “it really hurt, it hurt at a 10! (on the 0 to 10 pain scale). As he
described right after the burn injury he said, “and then she poured water on with ice cubes. But it didn’t hurt at all with the water because it was the same amount of pain.” When asked if he received any pain medicine he said, “yeah I took it but she said I can only give you pain medicine for a 4 or 5. She couldn’t do medicine for a 10.” His mom was at home doing dressing changes with oral pain medication of oxycodone. When the child was asked if he had gone through a lot of pain already he said “yeah.” He stated his pain has been controlled since he was in the pediatric burn center. He also said that “it didn’t hurt like a 10 for many days, after the water was done touching it then it just went to a 1, nothing hurt.” When he was asked if he learned anything from this burn injury he said, “I learned it’s painful.” Child 14 said after he was burned he went back and forth with his body and yelled “mom help me.” He said it was because it hurt and “I just wanted to jump in the pool so I could cool off” but she wouldn’t let me. He said he wasn’t sleeping well because “I was in pain with my right leg, really couldn’t sleep, and then they gave me ah changed me, changed the sheets cuz all the (drainage) and stuff, and then they gave me pain medicine, meds and then I could sleep. Child 15 said as he was talking about his picture “ouch, it was like ouch yahhhh ahhhh ahhhh.” He also described the pain as “it kinda like aches and then it stops. It goes again and then it stops.” Since he was referred to the pediatric burn center from another hospital when I asked him if he had any pain medicine since he was here and he shook his head yes and that it did help. He described when he was at the other referring hospital as: “It was hard, because the pain. I asked if I could put an ice pack on but the people at the other hospital said that they wanted to keep it clean, and it hurt really bad. They said on a scale of 0 to 10 how bad and I said a 10!” He said “that with the ice pack it went all the way down to a
3 or a 2.” When asked how the pain was with the pain medicine we gave him at this hospital he said “Zero, I don’t feel any pain at all.” He continued to describe his pain as “shocks, like 10 to 20 minutes ago I got a shock right here (he points to his leg). He said “it’s like a pinch stays for 3 seconds and then goes away.” Child 16 said his burn was itchy. He said “um yeah a little bit but I did what you said (in the education book story) Last night they gave me the medicine with the activity center. When he was asked to summarize his pain he said “no not really I didn’t have a lot of pain. Child 12’s picture says a lot of what was on his mind. He shared: Well before the procedure (burn redress) I was thinking to myself that they were that ummm while they put me to sleep I was thinking it’s really gonna hurt. I thought I was really gonna feel something, but I didn’t feel anything.” (see Figure 8).

Figure 8: Child 12 drawing
Trouble sleeping was also described frequently by the children. Child 1 stated as he described his picture that “And I’m trying to go to sleep and I’m like um watching TV and then that’s like the padding on my butt and then that’s the padding on my leg. And I’m trying to, and I’m watching TV (but can’t fall asleep). When asked why he said “Yeah cuz it itches sometimes.” Child 6 who had to wear a cervical collar and shoulder immobilizer so his graft would take was how he slept wearing these devices and he said “Not so good. It's kinda uncomfortable.” Child 12 stated what was important “is to make sure he gets enough sleep” he shared that the medicine they gave him helped him do that; prior to the medicine he was uncomfortable. Child 14 said he couldn’t sleep. “Uh Last night I was in pain with my right leg, couldn’t really sleep, and then they gave me ah changed me,
changed the sheets cuz all they were wet, and stuff and then they gave me pain medicine, meds and then I could sleep.” Child 17 said his picture was about him sleeping. He said “It’s about me sleeping, and I really like to sleep, cuz I’m usually tired.” He further described his “dream bubble” was a picture of a turtle drinking because he liked turtles (see figure 9). Child 20 when asked why he can’t sleep at night here in the hospital he said “the bed is uncomfortable.” When asked if he had any pain he said no.

Figure 9: Child 17 drawing

Meaning Unit 6-What I like to eat

Some of the children wanted to talk about food. Child 7 while describing his picture said “that’s a hamborder” when asked to clarify what a “hamborder” was he meant a
hamburger and he also talked about juice in his picture. Child 11 had a happy meal bucket on their bed and when asked about food stated “I love chicken nuggets.” When asked why they like chicken nuggets they replied “cuz theyz healfy.” They also said when describing their picture “this is ice cream, this is ice cream, this is um, this is um pink ice cream, this is blue ice cream, this is purple ice cream, and this is my triangle, that is ice cream, and that’s this is blueberry that is yellow ice cream with lemon and this is cherry ice cream.” When the child was asked if they liked ice cream they replied nodded their head affirmatively and said “it is good for you.” Child 12 said about the entire experience “well the biggest thing I learned is to eat healthy.” Child 13 shared “I love fruit cups.” They said “they taste real good and it makes it (the burn injury) heal better.” Child 14 was asked what he learned from the experience and they said “that you ahhhh…have to eat healthy.” Child 20 was drinking a milkshake and was asked what was in a milkshake, at first he said “sugar.” When asked what else he said “milk and that is good for you.”

**Meaning Unit 7-Thinking about outside**

Some of the children drew pictures of the outside. Child 5 drew a picture of them self standing outside when asked what was in the picture they said “me…and that is my cast.” When asked if they are just enjoying the day outside they nodded their head affirmatively. Child 7 stated “that a snowman…and the sun” when asked to describe their picture. Child 13 was explaining their picture and said “that is grass…and that’s the sun…” They did not recall if it was sunny out the day of the injury. Child 19 said “I’m just standing outside…(and this is) a dog.” He stated he did not have a dog but wanted one. Child 20 stated “I drew the sun right there, cuz there is sun that comes in my window and it always bothers my eyes. I wish I had a kite right there like a blindfold that I could put over there so I drew
a kite. Interestingly, 7 of the 20 pictures included the sun colored in their picture, not always yellow, but present. This is a sign of positive adaptive and coping strategies.

**Meaning Unit 8-My body itches**

Itching of the skin as it heals can be very problematic and bothersome to children. Three children addressed that as a problem. Child 1 stated his padding (the dressing) itched, “well it’s not really the padding, it’s the burn. Plus I can't lay on my butt because of the padding. I have to lay on my side all the time. I wish I could lay on my back cuz I always lay on my back to sleep.” When asked if they were given any medication to help with the itching they said “yes but it doesn’t really help for long. It itches again and then I can’t fall to sleep.” Child 18 described his itching as “it’s not on my bruises it’s not on my leg, well a little bit on my legs, but it’s the clear part that I can scratch (child was noticed scratching his skin and was asked if he was supposed to be doing that. He said “I know, the clear skin and that is what itches, the other part doesn’t itch, the burned part doesn’t itch). When asked if he was given medicine for that he said “not for my clear skin” (very annoyed and was referring to his donor sites) “and that is the part I am itching right now. Child 20 said “yeah last night it itched a lot.” When asked if he called the nurse and asked for medicine, he said “umm hmm.”

**Meaning Unit 9-My experience with colors or the alphabet**

Some of the younger children in the study did not relate anything in their picture or discussion at all to the burn injury. Child 4 identified the person in his picture as “a person holding a Y.” He then said “that’s an E backwards, and three X’s.” As the
interview progressed he shared that it was really him in the picture and that he was indeed learning to write his letters and was practicing that. Child 5 shared her favorite colors were “pink and purple” and used mostly those colors to draw her picture. Child 9 drew triangles in several colors. When asked what was drawn at the bottom of the page they said, “ummm a triangle.” Child 11 drew ice cream of which was pink, blue, purple, blueberry, yellow and cherry ice cream and also had a triangle in that drawing. Child 11 also identified 3 things drawn in purple in her picture as a ladybug named Tasha, mommy and daddy. Child 17 drew a dream bubble with a turtle in it and stated that his favorite color was green. Of these 5 children, 3 were 5 years of age, 1 was 6, and 1 was 7.

**Meaning Unit 10-Being upset with my parents**

Two of the children were really upset with their parents, and voiced their opinions that are noteworthy. Child 2 who initially would not communicate with me for over 30 minutes and then out of the blue stated: “my mother lied to me, she said she would never leave me and she leaves me all the time, see she said she would never leave and she keeps going for a smoke and never comes back. She never comes back, she always breaks her promises.” When the mother returned the child said “where were you?” The mother replied “I went out for a smoke.” The child said, “that long, you are a liar. You lie to me all the time.” The mother said “no I don’t.” The child said “Yes you do, you said you were never going to leave me, and you do, all the time.” Child 14 sensing some anger towards his mom said “so…I don’t know what kind of person wouldn’t have a fire extinguisher. Now I’ve been in the hospital five times.” He also shared “well when Sam (his sort of step-dad) gets out of jail we’re gonna move, yeah when he gets out of jail we’re gonna move.” When asked if that was going to be a good thing he said yes.
because children at school pick on him. Child 20 was a victim of (burn) abuse at the hands of his father. He did not want to talk about family or emotions at all. He spoke of a “darkness camp” where he plays hide and seek with his brothers under the table and chairs. He spoke of computers codes, and a man named Ned who had an assembly in school about yo-yo’s. His concern was that he didn’t get his free yo-yo because he was not in school because of his burn injury. This was very important to him. He shared that the principle of the school said that he might still be able to get a yo-yo. It is obvious he was missing being in school and the activities that were happening in school while he was in the hospital.

**Common Themes**

From these 10 meaning units three common themes emerged. They are:

1. Feelings and experiences
2. Adapting to my life now, and
3. Relating in my world

**Theme 1-Feelings and experiences**

The children in this study had a wide range of feelings and experiences. Feelings of being angry with their parents as well as experiencing the feelings of their own fear and anger were shared. The children were mad at their parents for not having a fire extinguisher in the house, or that they felt their parent had lied to them and broke promises. They experience hurt and pain as well as general discomfort. Their body itched. They had trouble sleeping and wanted to share the story of what happened to them and how medicine sometimes helped and sometimes didn’t. Some children drew a picture of the burn event itself, others drew other things but still wanted to talk to someone about
the burn event and how they experienced it. The researcher became that person. One child, experiencing anger while not articulating it, shared how he had saved his younger brother from injury but in turn was burned himself. He was adamant that the child who caused the injury be found and punished. In figures 3, 4, and 5 the pictures showed how the burn injury occurred some in very clear detail. In figure 10, another example of child 3 showing the microwave on fire on the shelf and how the fire got onto him, especially his arms.

**Figure 10: Child 3 drawing**

![Child 3 drawing](image)

**Theme 2-Adapting to my life now**

The children shared what they like to eat and verbalized how some of the food was healthy and would help them and their bodies get better. This helps them recognize in their own way the importance of good nutrition in their diets, even if some of their choices were fast food items like chicken nuggets, or ice cream or milkshakes. They also discussed how they need to take care of their bodies. Whether that is through using sunscreen, wearing protective clothing (warm and cold), hats, brushing their teeth and taking vitamins, all were mentioned as important and that it stuck out in this experience
of being burned or from the interaction with the researcher. Figure 9 shows a child who has incorporated her purple burn dressing into her colorful outfit and is outside in the sun. This may be a good example of positive adaptation. It is not clear whether the child knew that they would need to protect their skin from sun prior to reading and drawing in *The Pediatric Burn Book ©*. However, it may be knowledge that was gained from the book.

**Figure 11: Child 5 drawing**

![Child 5 drawing](image)

**Theme 3-Relating in my world**

Children are very resilient and have a way of coping at their own developmental level. Some children respond to things by play or trying to make things “normal” in their own world. The children who talked about colors and shapes like triangles were living in
their world and doing what was “normal” even as simple as coloring shapes, something that they do each and every day. One child was just learning his alphabet and used this opportunity to practice his letters, next to himself. Another child was very imaginative and shared her thoughts of ice cream in various flavors, food, a ladybug who she named Tasha, triangles, her mommy and daddy, and although not easy to identify herself with a little circle by her leg which was her “boo boo.” So while these items in her picture were not easily identifiable by adults, she knew what everything was and used her imagination through coloring a picture to share those thoughts. See figure 12.

**Figure 12: Child 11 drawing**

In summary ten meaning units and three major themes were identified through the analysis of this data. The findings in this study illustrate both pictorially and verbally what children who have suffered a burn injury experience. Connections are seen between the meaning units and major themes which illustrate the overwhelming resiliency children
have who undergo a major traumatic event such as a burn injury. The first major theme of “Feelings and Experiences” illustrates what the children are feeling and experiencing. This theme is supported by six meaning units: being upset with my parents, feelings of fear and anger, it hurt and I was uncomfortable, my body itches, trouble sleeping, and what happened to my body. The second major theme of “Adapting to my life now” encompasses how the children need to: take care of their body, what I like to eat, and what happened to my body. In realizing what happened to their body and how to take care of it since the burn injury is what enables them to adapt to their life now and incorporate the burn injury into their “normal routine.” Lastly, the theme of “Relating in my world” shares how children move on and experience the world around them at their developmental or cognitive level. The children were able to illustrate through drawing a picture and then telling their “story” of what the picture represented to be able to articulate in words through the use of their picture, would they would not be able to share verbally if they were asked to do so. Through the meaning units of: thinking about outside, and my experiences with colors or the alphabet, children demonstrated what they were capable of thinking about. The younger children in the study perhaps could not do what was being asked of them. Concentrate and draw a picture of them since they suffered their burn injury. These children did draw something that interested them and relate through colors, shapes, or the alphabet in their picture to share. Younger children are concrete thinkers and act in the “here and now.” They have thoughts that come in and out of their mind. While they did pay attention to the storybook I read to them, they thought to draw a picture of something that was important to them at the time. This may not always have been their burn injury; it was for one child, practicing his “letters” because he was learning how to write the alphabet. Other children
just were thinking of being outside and obviously not in the hospital so drew a picture of outside because that is what they wanted and were interested in or perhaps even missed being part of at the moment they were asked to draw a picture of themselves. What adults think may be important but is not always what children think is important to them at a given moment. This is particularly so when children suffer a traumatic injury such as a burn injury to their body.

CHAPTER 5

FINDINGS, CONCLUSIONS, AND IMPLICATIONS

5.1 Introduction
The process of discharge teaching and education is fundamental to nursing. So often however, we teach the parents how to care for their children prior to discharge rather than teach the child how to care for their own bodies. This is particularly true with burn injuries. There are few education tools available written at a child’s level of understanding. *The Pediatric Burn Book*© is a coloring and education book developed to do just that. The purpose of this study was to determine if children who suffered burn injuries would learn from this book. The children in this study were read the education book, asked to color a picture, and then tell the story of their picture. Since children cannot easily articulate their thoughts and feelings, the colored picture was used as a vehicle to enable children to talk, open up, trust, and tell their story. Storytelling is the method of this study. One research question guided this study. In this chapter the research question was examined relative to the identified meaning units and themes. Conclusions and implications for nursing education and research are presented. Implications for future nursing specific to the child with a burn injury are discussed at the end of this chapter.

5.2 Interpretation of findings

The research question that guided the study was: Do children identify key concept explained in *The Pediatric Burn Book*© that indicate learning about how to care for their burn injury? Findings suggest that the children did identify key concepts after reading the book. Fifteen of the twenty children in this study identified at least one of the seven education topics covered in *The Pediatric Burn Book*©. The seven topics covered are: 1) taking care of my body 2) bathing, 3) eating right, 4) exercise, 5) sleep, 6) going to school, and, 7) keeping follow up appointments. The most commonly identified
education topic was “taking care of my body.” Eight children identified at least one way to take care of their body. This education topic was grouped under the second theme of “adapting to my life now.” After an extensive search of the literature, there are no studies done to date that look at teaching children aged 5 to 10 years of age about caring for their burn injury. There is only one study found that used drawing a picture to have children tell them about their experience with asthma (Trollvik et al, 2011). This study advanced the science of nursing by filling a gap in the literature about pediatric burn patients. It also added to the science of nursing in that an age appropriate teaching tool was developed and showed nurses a way to communicate with and teach young children how to care for their bodies since sustaining a burn injury. It also shows the use of art and drawings to use as a vehicle to get children to talk about their feelings and thoughts.

**Theme 1: Feelings and Experiences**

This theme encompasses six meaning units “what happened to my body,” “feelings of fear and anger,” “I hurt and I was uncomfortable,” “trouble sleeping,” “my body itches,” and “being upset with my parents.” While this theme did not relate to the education book, it did provide some very meaningful and insightful data as to how the children were feeling and what they were experiencing. Children’s feelings and getting them to discuss their feelings are quite complex after sustaining a burn or traumatic injury. One of these complexities was that children wanted to blame someone or something for what happened to them. A six-year-old girl blamed her dog for pushing her and getting burned. She wanted an apology from the dog. I told her dogs can’t talk, she said “mine can.” A ten-year-old boy blamed his mother for not owning a fire extinguisher. Findings within this theme were somewhat unexpected as some of the children expressed
and demonstrated outright anger and were clearly upset with their parent(s). For example, children were “mad” at their parents for not having a fire extinguisher in the house, or felt their parent had lied or broken a promise to them... For example one child stated “I don’t know what person wouldn’t have a fire extinguisher.” Another child stated “she promised me when we came to this hospital that she would never leave me, and she leaves me all the time. She is a liar. She lies to me all the time.” Within this theme the statements clearly demonstrated that children in this study had either adapted and moved on from the burn incident or, that some of the children were still “stuck” at this day of injury and wanted to talk about it.

Some children discussed the burn incident in vivid detail. It was also found that even if the child did not draw a picture of the burn incident, they still wanted to talk about the experience of what happened the day of the burn event. Some children spoke and drew pictures in great detail, others spoke more generally. The children who simply drew a picture of or just wanted to describe the event may have still been processing the trauma in their head. Some of the children were quite anxious and seemed to be re-living the day of the burn injury. Rimmer et al., (2013) found that three levels of anxiety have been noted in acute pediatric burn patients. They include: pre-existing anxiety, posttraumatic-induced anxiety, and anticipatory anxiety. All of these types of anxiety can be provoked and heightened by the hospital experience itself. Several studies have documented high levels of a state of anxiety in children (Blakeney, et al, 2008 & Sheridan et al, 1997).

One child in particular wanted justice. He was angry and acting out by throwing his tray and items in his hospital room. He wanted the neighbor boy who placed a tarp on his little brother, poured gasoline on it, and set it on fire punished. This hospitalized child
was injured pulling the tarp off his brother when the gasoline on fire poured onto him. He felt his parent(s) were not listening to him, particularly since they knew who the boy was, a neighbor. He wanted justice, the “bad boy” punished by police. He kept trying to get his mother to listen to him, but she kept ignoring him. He stated “mom you know who he is, he lives on the corner in the brown house. He is always wondering around the neighborhood.” This trauma was not going to go away until he got his mother to listen. Through this research interview, the interviewer spoke with the mother; she began to listen and was told that her child was a hero. This child finally had his mothers’ attention and the medical staff was made aware of the severity of the situation and why the child was acting out. The child became calmer after this conversation. Feelings of fear and anger the children described at the time of burn injury, along with the ambulance ride, the stay in the hospital, and during a dressing change. One father shared he was afraid throughout the entire experience, from the moment the burn injury happened until they arrived at the hospital. This helped to normalize his child’s feelings of fear. Fear of the unknown is a very common feeling in children. In the following statement, the child his thoughts about his first dressing change. He states “well before they procedure I was thinking to myself, that they were that ummm while they put me to sleep, I was thinking it’s really gonna hurt. I thought I was really gonna feel something, but I didn’t feel anything…and then when I woke up, I’m like…what happened?” This is supported by Rimmer et al., (2013) who found that additional causes of stress for children during burn care hospitalization include: immobility, itching, mood swings, fear of the unknown, depression and grief, sleep disruption, and separation from their family and friends.” As for anger, as mentioned in the above example of the child wanting justice, the child was
angry about the fact the burn event happened in his backyard and that the neighbor child who actually caused the burn injury was never acknowledge and punished for it. Some of the children were angry at their parent for not protecting them or that the parent didn’t own a fire extinguisher. The children were also generally angry that the burn event even happened. Some children shared that they had “trouble sleeping.” Most of the children described it was because of itching or pain they were experiencing. The reason the children said they had trouble sleeping was because they had to sleep in a new, uncommon position that they were not used to because of either the location of the burn or a splint or brace they had to now wear in some instances to protect the donor or burn site. One child had to wear a brace to keep his arm at a ninety degree angle until the donor skin adhered. One child shared “And I’m trying to go to sleep and I’m like watching TV and then…the padding on my butt and then the padding on my leg and I have to lay on my stomach and I can’t get comfortable.” One child had to wear a brace to keep his arm at a ninety degree angle until the donor skin adhered. One child shared, “and I’m trying to go to sleep and I’m like watching TV and then…the padding on my butt and then the padding on my leg and I have to lay on my stomach and I can’t get comfortable.” “My body itches” elaborated on those whose burns had already begun to heal. At least three of the children had itching which then kept them from sleep. The children shared that medicine was obtained from the nurse to relieve the itching. “Being upset with my parent” was verbalized very strongly by at least two children. The promise of staying with the child and not leaving was broken by the parent. One child said “you promised me you would never leave me and you do all the time. You are a liar!” The parent left the child for cigarette breaks, to go the cafeteria, and to go to the library to get books for the
child to read. These books were never brought back since the only library in the hospital is a medical library. The importance of being honest with child was shared with the parent by the researcher. This breach of trust and feelings of anger in the child who was already traumatized from the burn event only further complicated the child’s coping abilities. Some of these reactions were unexpected in the study, but arose and support was given. Staff such as child life therapy and social work, were involved to help the children in these situations work through the child’s feelings of anger and trauma. The burn social worker is available to talk with the parents if they needed to talk. All attempts were made to keep family members together. If the parent was burned, the child was placed in the burn unit in a room directly next door to help maintain the family unit and alleviate fear for the children. One child called his mother next door on a cell phone to remain feeling close. The parent frequently visited and stayed with the child in his room whenever possible.

**Theme 2: Adapting to my life now**

Adapting to my life now” encompasses the meaning units “taking care of my body” and “what I like to eat.” The children spoke about how they need to take care of their bodies. Of the seven education topics mentioned in *The Pediatric Burn Book* related to “taking care of my body,” one of the most mentioned topics was wearing sunscreen. Seven children mentioned that. Also, children mentioned, wearing protective clothing (both warm and for the cold), brushing their teeth, keeping their body clean, taking vitamins, exercising, and getting enough sleep. These education topics are clearly identified in the pictures they drew as follows: In figure 1, child 7 drew a suntan lotion bottle and in figure 2, child 8 drew a picture of himself brushing his teeth.
The second meaning unit under this theme, “what I like to eat,” The children verbalized how food was healthy and would help them and their bodies get better. This helped them recognize the importance of nutrition in their diets, even if some of their food choices were chicken nuggets, ice cream, and milkshakes. The education topic of “eating right” was clearly identified in their pictures as follows: Child 7 drew a hamburger (which he called a hamborder); child 11 drew ice cream and talked about all the colors and flavors in the drawing. In discussing “eating right” during the interviews, Child 12 and 14 shared the biggest thing they learned is “I have to eat healthy.” Child 13 liked fruit cups; child 18 said it was “important to eat and drink”, child 15 mentioned taking his vitamins, and child 20 drank a milkshake during the interview and shared that “milk is good for you.” Children are presumed to adapt well to all kinds of situations. They are resilient and presumed to be fine if they do not act out or verbalize maladaptation. Much of the research on children’s adaptation is on children learning to adapt with a disability or severe chronic illness. Limited research was found on children adapting in the acute care setting. Young children have limited ability to understand how organs and the body works and how they can be affected by illness. Their understanding is primarily based on their cognitive ability and previous healthcare experiences. Hospitalization and the accompanying medical procedures are very stressful to children. Significant stressors for the hospitalized child are: separation from parents/caregiver, loss of self-control, autonomy and privacy; painful and/or invasive procedures, and fear of bodily injury and disfigurement (Ball & Bindler, 2010). Children and adolescents vary in how they respond to a traumatic experience. The reactions may be influenced by their developmental level, ethnicity and cultural factors, previous trauma exposure, available
resources, and preexisting child and family problems. However, nearly all children and adolescents express some kind of behavioral change or distress in the acute phase of recovery of a traumatic event. It is important to remember that not all short-term response to trauma is problematic. Some of the behavioral changes displayed may reflect a child’s adaptive attempt to cope with a difficult or challenging experience. Many of the reactions displayed by children and adolescents who have been exposed to trauma are similar to behaviors that mental health professionals see on a daily basis. They are:

- the development of new fears
- separation anxiety (particularly in young children)
- sleep disturbances (nightmares)
- sadness
- loss of interest in normal activities
- reduced concentration
- decline in schoolwork
- anger
- somatic complaints
- irritability

Functioning of the family, peer groups or in school may be impaired as a result of the above symptoms. Therefore when a clinician works with children who may display these types of reactions, the clinician must assess the child’s possible exposure to trauma. Over time, most children return to their previous level of functioning. This is especially so if they were exposed to a single incident. Youths who have been exposed to multiple traumas, have a past history of anxiety problems, or have experienced family adversity
are likely to be at a higher risk of showing symptoms of posttraumatic stress. Most children with distress related to trauma exposure and in need of help do not receive psychological treatment, and those who do receive a variety of treatments. Helping children and families return to or create normal roles and routines can help a child provide reassurance and a sense of safety (Presidential Task Force on Posttraumatic Stress Disorder and Trauma in Children and Adolescents, 2008).

**Theme 3: Relating in my world**

The third theme of “relating in my world” encompassed the meaning units of “thinking about outside” and “my experiences with colors or the alphabet.” This third theme emerged because it relates to young magical thinking and what preschoolers think about and find important: the outside, colors and the alphabet. These two meaning units reflect the cognitive and developmental level of the children who drew and spoke about it although not all children may. When children aged five and six are asked to draw or color they may place objects throughout the page with no concern for ground lines or relationships to size. Malchiodi (1998) found that color does not always correspond to objects (such as leaves are green). Leaves can be pink or purple. Drawings are free and often whimsical and inventive. There are no rules, and the sun may be purple and a cow yellow. Malchiodi’s book “Understanding Children’s Drawings,” has furthered the work of prominent theorists and researchers of the past such as Rawley Silver, Viktor Lowenfeld, and W. Lambert Brittain, and has attempted to continue the evolution of understanding what children communicate through their drawings. Lowenfeld believed that children’s growth through art was analogous to the process of organizing thoughts.
and development of cognitive abilities. Many art educators and therapist use Lowenfeld’s stages as a standard for assessing artistic development in children particularly in art therapy (Malchiodi, 1998). Malchiodi (1998) states that drawings offer therapists a potent tool for understanding children’s thoughts, feelings, fantasies, conflicts and worries as well as perceptions and reflections of the world around them (Malchiodi, 1998). As one attempts to understand the emergence of theme three, the relationship of children’s development and cognitive level is shown in the aspects of the children’s art. Piaget (1999) states that in the preoperational stage, ages 2-7 children are able to form stable concepts and as well as magical beliefs. Thinking in this stage is still ego-centric meaning the child has difficulty taking the viewpoint of others. Children also classify objects by a single feature. While they are getting better with language and thinking, they still tend to think about things in very concrete terms. Vygotsky’s social development theory places more emphasis on culture and social factors contributing to cognitive development. A skill full tutor can greatly influence cognitive development, but what if the social factors and finances surrounding a child are limited and the child comes from a low socioeconomic background with caregivers who are not very well educated? It would follow that the child’s cognition would be less developed or advanced than a child living in a more favorable social environment (McLeod, 2007). This may very well be why the younger children were not able to focus and do what was asked of them in this study. Also memory is limited by biological factors but culture and positive social factors can enhance the type of memory strategy and child development i.e. note cards, pneumonics, and is an area that should be further studied in regard to developing appropriate healthcare education tools for children. This is the cornerstone in understanding theme
three. This theme is almost “outliers” of the study. While the children did listen to the researcher read the teaching and education book about burns, when they were asked to draw a picture of themselves since their burn injury, their picture contained nothing or had anything to do with *The Pediatric Burn Book*© or their current burn injury experience. Particularly obvious was child #4. He drew and told me about his picture of which he drew the letters X and Y. Then he drew the letter I, S, and A and said “that is it” (describing his picture). When I noted a tadpole like figure in the center with a line extending out to a Y, he did say that was a person, then he shared smiling shyly that it was him holding a letter Y upon further inquiry. He said he had just learned his letters and was practicing writing them. This obviously did not have anything to do with identifying with the education burn book. But his egocentricity and magical thinking had ‘letters’ occupying what was really important to him in his head at this time. Child # 9 drew a picture of herself with many colors. A yellow sun and many triangles and shapes were in her picture. This child described a purple item as a “toss.” She never would elaborate or explain exactly what a “toss” was. She was very hyper and had great difficulty focusing on anything at all. She blamed her dog for her burn injury. She tripped over her dog and pulled grease on the stove onto herself. She wanted an apology from her dog for the accident. When I told her dogs don’t talk, she said “mine does” (magical thinking). Both of these children were 5 years old. There was one other five years old in the study. This child was interested in colors, ice cream, and a ladybug. She did draw a picture of herself and did share her love of chicken nuggets. These factors led this researcher to wonder whether this aged child was ideal to include in this study. Their developmental and cognitive level may not have allowed them to do what the researcher
intended in this study whether it was their limited in-built, pre-determined developmental ability (Piaget) or their inability or lack of positive social factors that influenced their cognitive development (Vygotsky).

5.3 Conclusions

It may be that the children in this study appeared to be moving on and adapting to their life now since their burn injury, but based on this study that generalization cannot be definitively made. Some of the children nursing staff identified as “problem pediatric patients,” were actually children who appeared to still be dealing with and re-living the trauma of that day. Many of them had limited or no coping abilities to handle it. Most had limited parental or caregiver support. These children acted out to get attention. Once they were able to talk and have their voices heard, it seemed to help decrease their stress level and identified other issues such as parental trust barriers being broken with the child. The need for psychological counseling for these children was identified as lacking. Efforts must be made to alleviate this problem and provide parental support and education on parenting and safety to just simply talk about the burn event. The need for psychological counseling for these children was identified as lacking. Efforts must be made to alleviate this problem and provide parental or caregiver support and educating on parenting and safety. Through identifying meaning units that children identified and then organizing those units into three general themes allowed this researcher to determine that children did learn from this burn education book. Fifteen of the twenty participants did name one of the education topics in The Pediatric Burn Book®. It also helped identify that some of the younger children may not have been cognitively and developmentally ready to
participate in this research process. It is important that children be included in the education about their bodies and what they can expect to experience in the future as their bodies heal. It is still very important that this be done at their developmental and cognitive ability. More books like *The Pediatric Burn Book©* need to be available to help children learn. Historically, most information about children’s views has been obtained through objective measures or from proxy accounts by adults (parents or teachers) who were thought to know the child (Faux et al., 1988, Sinclair, 1996). It appears that the adult’s view of the child’s world is frequently substituted. Children’s views represent a rich source of data and have been largely unexplored from their own perspective (Coyne, 1998). Writings by sociologists suggest that in the past children have been mainly viewed as objects rather than subjects of concern (James & Prout, 1990, James, 1993). This is possibly reflective of the developmental perspective that the views of children are unable to understand and that children can’t describe their world and life experience due to developmental immaturity and because of the inherent difficulties in conducting research with children (Coyne, 1998). Others have noted the lack of information on the methods of researching children in clinical and non-clinical settings (Amato & Ochiltree, 1987; Faux et al., 1988). This study provides an example of how to educate children in a clinical setting, through the use of drawings and storytelling. The golden time for teaching and using psychological strategies for coping with pain and suffering is from ages 6 through 14. Children are still grounded in concrete experiences. Psychologically children at this stage of development are use to working with teachers and coaches and are open to forming instrumental relationships with adults and learning from them. Educating the child, teaching them what to anticipate, and involving them as the expert
on themselves can greatly reduce what they experience as pain and anxiety. The children are highly invested in learning new things and taking care of themselves (Dise-Lewis, 2001). Establishing rapport and gaining a child’s trust is key to an effective and informative interview session. Pediatric nurses are in a prime position to conduct such interviews and research. Their experience with talking and interacting with children and parents or caregivers provides them with a vital tool for conducting research projects with children. The use of play to gain a child’s cooperation and trust enhances the interview process. This researcher spent time talking with the parent or caregiver prior to the drawing and interview process. If children see the parents trusting of the health care worker, they may be more open to talking. Getting to know the child and the toys on their bed or asking about favorite television shows they may be watching shows the child you have a general interest in them. Most children like to draw and get pleasure and enjoyment from the activity. (Backett & Alexander (1991) used drawing along with other methods to ascertain children’s health related beliefs. They found that asking children (n=52) aged 4-12 years to talk about their drawing helped put them at ease and created rapport. Other researchers have used drawing to prove a framework for discussion and as a tool to enhance credibility of the interview data (Wilkinson, 1988; Innman 1991). Wilkinson (1988) used children’s drawings to assess the functional effects of illness on the relationship between the family members. He asked children 8 years or older to draw a picture of their family with everyone doing something. He then asked them to draw a similar picture with the modification that one of the members was ill. He then compared the pictures and was able to assess the functional effects of illness on family members. Wilkinson, (1988, p.85), found that drawings helped the child to talk about the effects of
illness on relationships. Inman (1991) used drawings along with other methods to explore the children’s views (n=10) of a visit to an oncology clinic. He found that the interview data was reinforced by the pictures drawn by the children. Trollvik, (2011) used drawings to explore children’s experience with asthma. They found fear of exacerbation (bodily sensation, frightening experiences, and loss of control) and fear of being ostracized (experiences of being excluded and the dilemma of keeping the asthma a secret or being open about it) were what children aged 7 to 10 years of age (n=15) identified. This provides support in using drawings as a tool for research.

5.4 Limitations

Limitations of this study are that the participants were obtained from only one level one trauma center and pediatric burn center in northeastern Pennsylvania. The total body surface area (TBSA) of the burns were small. Eighteen participants were less than 15% TBSA; patients with larger burns may have presented different results. There were twenty participants in this study. Only English speaking children were included because The Pediatric Burn Book© is only available in English. The participant age range may have limited the findings in this study, particularly too broad an age range of children aged 5 to 10. The younger child’s (three children aged five) cognitive ability may not have been appropriate for the study.

5.5 Recommendations and Implications

Recommendations for Future Research

Pediatric nurses are at the frontline of caring for pediatric burn patients. Nurses are teachers and need to teach children using appropriate tools at the appropriated developmental and cognitive level so children can successfully learn. The injury
happened to their body. The child should be included in learning about the future and how to take care of their bodies. Examining the direct effect of stress and trauma on the pediatric burn patient is monumental in our understanding how children experience the sequelae of a burn injury. Examining and analyzing the pictures by an expert in pediatric art therapy would provide further insight into the emotional well being and coping abilities of children who suffered a burn injury. Family dynamics and support systems for children need to be identified. Further research should be conducted that examines long term outcomes such as posttraumatic stress disorder and long term anxiety disorders of these young children who suffered a pediatric burn injury. Some of those studies indicate children suffer from post traumatic stress disorder, (PTSD) years after the burn injury or stay occurs. Two studies (Sherridan et al, 2000; Meyer et al., 2004) found that while most children can achieve psychological adjustment, many children do experience long-term psychosocial difficulties that are mainly behavioral, emotional, and social problems as well as decreased self-concept (DeYoung et al., 2012). Schreirer et al., (2005) found that 69% of children were found to have at least mild PTSD symptoms at baseline, 57% at one month and 59% at six months, and 38% at eighteen months post injury. Younger age and the severity of parental PTSD symptoms were correlated with symptom presence in children aged 7 to 17 (n=83). This was only refuted by one older study by Blakeney et al., (1993) that found that children with >80% total body surface area of burn, they developed positive feelings about themselves and appear no more troubled than a comparable group of non-burned children (n=25). We need to listen to the children. They should be encouraged to color, communicate in their own ways, and share
their feelings in a non-threatening and trusting environment. There is a need for further research to examine the effects children experience years after the initial burn injury.

**Recommendations for Future Education**

This education book needs to be developed in multiple languages and in a format suitable for children in the pre-school age. While there are age appropriated burn prevention books, there are no age appropriate burn education books after the injury has occurred. Sinah et al., (2010) shared how comic books can educate children about burn safety in developing countries. *The Pediatric Burn Book©* was developed to educate children at their cognitive level to understand how to take care of their bodies once a burn injury has occurred. Burn prevention strategies should also be included in this education book to fulfill both educational needs. This education should occur in schools to hopefully prevent another burn injury from happening.

**Implications for Nursing Practice**

An extensive review of the literature was conducted with close attention to burn and pediatric journals. Much of the research done on pediatric burn patients is about epidemiology, managing pain, burn prevention, examining psychological aspects such as body image and depression. The limited education topics educate the caregiver, not the children. Children are included in education mostly about burn prevention not education. In examining teaching of pediatric burn patients only one study conducted in 1996 by Jenkins et al., which evaluated a discharge teaching book for pediatric patients with burns. In this randomized single blind evaluation, children less than 17 years of age were given a questionnaire. For children less than 12 years of age, the caregivers filled out the questionnaire. The study examined the knowledge of the caregivers primarily, not the
children. This is particularly so for children younger than 12 years of age. Clearly, age appropriate teaching techniques and ways to measure outcome are not always being used for discharge teaching of hospitalized children. This is the problem and why this pediatric teaching book was developed. There is a need to teach the children as well as the caregivers, not ignore them. The focus was on preparing patients for discharge and enhancing adherence with teaching regimens. Outcome evaluation was not part of this study.

Only one study was located that utilized children’s drawings to engage children in conversation. Trollvik et al., (2011) examined fifteen children living with asthma aged 7-10 that colored a picture in an attempt to develop a learning program based on children’s needs. The study found two themes; fear of exacerbation and fear of being ostracized. Children shared after coloring a picture and telling a story about the meaning behind their drawings. The researchers concluded that drawings are a good tool for initiating a dialogue with children and gaining access to children’s inner thoughts.

This study of *The Pediatric Burn Book©* is unique and the only study to date that used drawings to engage children to determine if they learned or retained any information from the education, coloring, and storybook that they read. In addition, this study enabled the children to share any feelings they wanted to convey. It is also the only study examining learning of children with burns aged 5 to 10 years old. This is very important in not only giving nurses an age appropriate tool that can be used appropriately according to the developmental and cognitive level of the child. In addition, emphasizes the importance of including and not excluding children in learning how to care for their bodies after sustaining a burn injury. This study contributed to the science of nursing by
yielding insight into what children are really thinking about or worried about in regard to their burns. These can be barriers to learning. Future age appropriate development of tools for children should include the children identifying what they want information about and want to learn. Long term retention and outcome data would also be helpful in identifying whether or not teaching efforts are appropriate for children and offer further insight in what they need. We must listen to the children and not exclude them from the learning process.

In summary, this study used the first age appropriate teaching book for children with burn injury. This book may empower the child to learn about how to care for themselves and does not ignore their education needs. It also educates the parent or caregiver. Using drawings in a study provides a good tool for establishing a rapport, initiating dialogue, and gaining insight into what children with burn injuries experience. This study further identified the lack of age appropriate teaching tools for young children provided an example of how to communicate with children through drawing a picture and talking about their drawing. Most importantly provided insight to what children are really thinking and feeling after suffering a traumatic injury such as a burn. It advances the science of nursing in providing an example of a teaching tool for young children. More tools like this need to be developed for other disease processes and utilized. It does not help anyone if tools like this are developed and then left in a teaching cabinet and not used by nursing. This study also showed nurses a method of how to communicate with children, through drawings. Some of the feelings children shared may be detrimental to their future physical and psychological development. In future studies partnering with professionals who interpret children’s art may provide deeper insight into the feelings and
experiences children are experiencing. Examining long term outcomes of children’s experience with burn injuries may also help nurses understand better interactions that should occur and services that should be provided early on in the in-patient hospital setting to prevent long term trauma and problems such as post traumatic stress disorder (PTSD). Continued partnering with schools, churches, clubs and scouting programs, and out-patient centers and burn prevention must also continue for children, parents and other caregivers.
References


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2009.


February 2, 2011

Re: Exploring learning of pediatric burn patients through story telling (Protocol 10-38)

Dr. Linda Goodfellow
School of Nursing
Duquesne University
Pittsburgh PA 15282

Dear Dr. Goodfellow:

This letter concerns the research of your student, Ms. Maryann Godshall, approved by our IRB on May 6, 2010.

After our review, Lehigh Hospital’s IRB (the research site) requested revisions. I have reviewed those revisions. They are consistent with the parameters set by our original approval so they are approved.

Lehigh Hospital requested that our IRB not stamp permission and assent forms with Duquesne approval and one-year expiration date. Without appearing on the forms, our expiration date still pertains. Expiration will be FEBRUARY 2, 2012, the deadline for standard annual review. Without renewal authorized by Duquesne’s IRB, research activity after that date will be out of compliance. This expiration date replaces the one based on our original approval.

If, prior to the annual review, you propose any further changes in procedure or consent process, you must inform this IRB of those changes in a formal amendment and wait for approval before implementation. In addition, if any unanticipated problems or adverse events are discovered, they must be reported to Duquesne’s IRB chair immediately.

If you have any questions, feel free to contact me at any time.

Sincerely yours,

Paul Richer, Ph.D.

C: Dr. Kathleen Sekula
Dr. Karen Paraska
Ms. Maryann Godshall
IRB Records
March 31, 2011

Maryann Godshall, PhD(c), MSN, CPN, CCRN
1200 South Cedar Crest Blvd.
PO Box 689
Allentown, PA 18105-1556

IRB Protocol#: 2-20101117

Title: EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS THROUGH STORYTELLING

Sponsor: Lehigh Valley Health Network Department of Pediatrics

Dear Ms. Godshall:

The above-referenced protocol and consent changes (protocol version dated 3/12/11 and consent dated 3/15/11), were reviewed by the Institutional Review Board using the expedited review procedure and have been granted approval on March 31, 2011. The submitted research project meets the DHHS criteria for expedited review per 45 CFR 46.110 and approval per 45 CFR 46.111. This project also continues to meet the criteria for approval under 45 CFR 46.404, research not involving greater than minimal risk. Thus, this letter constitutes official notification of approval.

Enclosed please find the revised stamped “IRB-approved” consent form (version dated 3/15/11) for your use and duplication. Be aware that this consent is now the only version of the consent approved by the IRB for this study.

Under the provisions of Lehigh Valley Hospital and Health Network’s Federal-Wide Assurance with the Department of Health and Human Services, the principal investigator is directly responsible for submitting to the IRB any change in the research. All changes must be reviewed and approved by the IRB prior to implementation. In addition, all unanticipated problems involving risk to research subjects or others must be reported to the IRB within ten days per IRB Policy IV.M.

This study will be due for continuing review on or before 04 January 2012. At that time please submit a continuing review application along with all required paperwork to the IRB office.

Sincerely,

[Signature]

Mark Wendling, MD
Vice-Chair, IRB #2
September 9, 2011

Maryann Godshall, PhD(c), MSN, CPN, CCRN
1200 South Cedar Crest Blvd.
Pediatric Intensive Care Unit
Allentown, PA 18105-1556

IRB Protocol#: 2-20101107

Title: EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS THROUGH STORYTELLING
(Investigator Initiated Protocol Version dated 09/9/2011; Consent version 3/15/11)

Sponsor: Lehigh Valley Health Network

Dear Ms. Godshall:

The above-referenced protocol’s Amendment #3 (version dated 9/9/11) was reviewed by the Institutional Review Board using the expedited review procedure and has been granted approval on September 9, 2011. The submitted research project meets the DHHS criteria for expedited review per 45 CFR 46.110 and approval per 45 CFR 46.111. This study also meets criteria for 45 CFR 46.404. Thus, this letter constitutes official notification of approval.

Under the provisions of Lehigh Valley Hospital and Health Network’s Federal-Wide Assurance with the Department of Health and Human Services, the principal investigator is directly responsible for submitting to the IRB any change in the research. All changes must be reviewed and approved by the IRB prior to implementation. In addition, all unanticipated problems involving risk to research subjects or others must be reported to the IRB within ten days per IRB Policy IV.M.

This study will be due for continuing review on or before January 4, 2012. At that time please submit a continuing review application along with all required paperwork to the IRB office.

Sincerely,

Margaret Hoffman-Terry, MD
Chair, IRB #2
November 29, 2011

Maryann Godshall, PhD(c) MSN CPN CCRN
Pediatric Intensive Care Unit
1200 South Cedar Crest Boulevard
Allentown, PA 18103

IRB Protocol#: 2-20101107

Title: EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS THROUGH STORYTELLING (Investigator Initiated Protocol Version dated 09/9/2011; Consent version 3/15/11) — Recruitment and/or enrollment of new participants or review of records/specimens continue

Sponsor: Lehigh Valley Health Network Department of Pediatrics

Dear Dr. Godshall:

The above-referenced protocol’s 2011 continuing review submission was reviewed by the Institutional Review Board using the expedited review procedure and has been granted approval on November 29, 2011. The submitted research project meets the DHHS criteria for expedited review per 45 CFR 46.110 (Categories 5 and 7) and approval per 45 CFR 46.111. This project also continues to meet the criteria for approval under 45 CFR 46.404, research not involving greater than minimal risk. Thus, this letter constitutes official notification of the continuing review approval.

Under the provisions of Lehigh Valley Health Network’s Federal-Wide Assurance with the Department of Health and Human Services, the principal investigator is directly responsible for submitting to the IRB any change in the research. All changes must be reviewed and approved by the IRB prior to implementation. In addition, all unanticipated problems involving risk to research subjects or others must be reported to the IRB within ten days per IRB Policy IV.M.

This study will be due for continuing review on or before November 28, 2012. At that time please submit a continuing review application along with all required paperwork to the IRB office.

Sincerely,

[Signature]

Margaret Hoffman-Ferry, MD
IRB Chair
September 17, 2012

Maryann Godshall, PhD(c) MSN CPN CCRN
Pediatric Intensive Care Unit
1200 South Cedar Crest Boulevard
Allentown, PA 18103

IRB Protocol #: 2-20101107

Title: EXPLORING LEARNING OF PEDIATRIC BURN PATIENTS THROUGH STORYTELLING (Investigator Initiated Protocol Version dated 09/9/2011; Consent version 3/15/11) – Recruitment and/or enrollment of new participants or review of records/specimens continue

Sponsor: Lehigh Valley Health Network Department of Pediatrics

Dear Dr. Godshall:

The above-referenced protocol’s 2012 continuing review submission was reviewed by the Institutional Review Board using the expedited review procedure and has been granted approval on September 17, 2012. The submitted research project meets the DHHS criteria for expedited review per 45 CFR 46.110 (Categories 5 and 7) and approval per 45 CFR 46.111. This project also continues to meet the criteria for approval under 45 CFR 46.404, research not involving greater than minimal risk. Thus, this letter constitutes official notification of the continuing review approval.

Enclosed is the renewed “IRB-approved” consent form (dated 3/15/11). Be aware that this consent is now the only version approved by the IRB for this study. The Board determined that the conditions of 45 CFR 46.404. The IRB prefers consent from two parents but will accept consent from one parent as the legally authorized representative. Assent will be required of children 7 and older unless deemed by the investigator to not be developmentally appropriate.

Under the provisions of Lehigh Valley Health Network’s Federal-Wide Assurance with the Department of Health and Human Services, the principal investigator is directly responsible for submitting to the IRB any change in the research. All changes must be reviewed and approved by the IRB prior to implementation. In addition, all unanticipated problems involving risk to research subjects or others must be reported to the IRB within ten days per IRB Policy IV.M.

This study will be due for continuing review on or before September 16, 2013. At that time please submit a continuing review application along with all required paperwork to the IRB office.

Sincerely,

Margaret Hoffman-Terry, MD
IRB Chair
PARTICIPANT INFORMED CONSENT AND AUTHORIZATION FORM

Title: Exploring Learning of Pediatric Burn Patients through Storytelling

Principal Investigator: Maryann Godshall, PhD(c), MSN, CPN, CCRN
Pediatric Intensive Care Unit (PICU)
Lehigh Valley Health Network
610.402.5500 (PICU)
610.751.5090 (cell)

Introduction:
Your child is being asked to participate in a research study. As the parent/caregiver, you are being asked to give consent for your child to be in a research study. You are being asked to do this because your child is a minor. This document describes the research study that your child is being asked to participate in and what the study will involve. Please read this document carefully and do not hesitate to ask any questions at any time. Participation in this study is completely voluntary. It is up to you to decide whether or not you want your child to participate. If you decide to allow your child to participate, you will receive a signed copy of this document for your records. Also, if you decide to allow your child to participate, you can change your mind at any time and withdraw from the study without giving a reason. This will not affect the quality of care your child will receive.

Purpose:
Your child is being asked to participate in a research project because your child has a burn injury. This study seeks to better understand your child’s perceptions of a child education book called “The Pediatric Burn Handbook©.” Your child will be asked to read and color the Pediatric Burn Handbook©. They will then be asked to draw a picture of themselves after coloring and reading the book. Your child will be asked to describe their pictures to the researcher in their own words. This discussion will be audio-taped and transcribed by the researcher. The interaction with your child will take about one hour. The researcher will also need to keep the original picture or a copy of the picture for analysis purposes. These are the only requests that will be made of you and your child. You will be able to stay in your child’s room when this process is going on so that your child is not afraid and is comforted by having you there.

Version Date 3/15/2011

Parent’s Initials

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LEHIGH VALLEY HOSP.

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Study Procedures:
Your child will be given The Pediatric Burn Handbook©. The student investigator in this study will read the book to your child. Your child will be given time to color in the book. The child will be asked to draw a picture about “what this book meant to you.” Your child will be given a white coloring pad and colored markers. After your child completes the picture, the researcher will then ask your child to “tell me about your picture.” The story your child shares with the researcher will be audio taped and later transcribed word for word. The entire procedure should not take more than an hour. If your child would like a copy of their picture they can either keep the original or a photocopy will be made for them. Your child’s participation will be over after this interaction is completed.

Risks and Discomforts:
This research study consists solely of allowing the researcher to read a story to your child and allowing them to color a picture. The student researcher will then ask your child to tell her about the picture they had drawn. This study does not require your child to have any additional procedures or treatments. Therefore, being in this study does not involve any physical risks or discomfort that your child would not face during your routine treatment. There are no perceived risks “greater than everyday experiences” associated with your child’s participation in the study. However, if the process leads to emotional distress or upsets you or your child, the session will be immediately stopped. The student researcher will stop the audio recording and leave the room to contact your child’s health care team.

Benefits:
Potential benefits for your child will be added education about how to care for their body since it has burned. The study hopes to help nurses better understand what the pediatric burn patient is experiencing and if the teaching tool “The Pediatric Burn Handbook©” has helped them understand how to care for their bodies after going home. This may be a new effective teaching tool and way to communicate with children with burn injuries.

Alternatives to Study Treatment and/or Participation:
The alternative to participating in the study is that your child does not have to participate. The interview with the researcher is not part of the standard care your child would normally receive but your child will still be given the teaching tool “The Pediatric Burn Handbook©.”

Cost and Compensation:
This study will be of no cost to you or your insurance company. Your child will be given markers and a coloring pad on which to draw their picture. They will be able to keep the markers and coloring pad and take it home with them. This will be the only compensation for participating in this study.

Version Date 3/15/2011

Page 2 of 5
Authorization for Release of Health Information and Confidentiality:
In order to participate in this research study, you must authorize the release of your child’s health information related to and used for purposes of this research study. The Principal Investigator, Maryann Godshall is responsible for overseeing the use and disclosure (sharing) of your health information. Any information about your child or your child’s treatment obtained from this research including your child’s age, gender, race, grade level in school, type of burn injury (for example if the injury occurred as a result of flame or scald), area of the body burned (to determine if it impacts the child’s ability to participate), and the percentage of body surface area burned will be kept confidential and never identified in any report. Should results of this study be reported in nursing journals or at meetings, the names of all participants will remain anonymous. Only authorized representatives, such as the Department of Health and Human Services (DHHS) and Lehigh Valley Health Network’s Institutional Review Board (IRB, a research ethics and study participant protection committee), will have access to your medical records relating to this research; all information examined will be coded and kept confidential. However, because of this potential need to release information to outside parties, absolute confidentiality cannot be guaranteed.

Your child’s study-related health information may be re-disclosed by any of the organizations listed above and may no longer be protected. This re-disclosure would be done only in your child’s best interests; the agencies listed above monitor research to ensure studies are conducted appropriately and ethically.

This authorization to release your child’s health information is effective from the date you sign this consent and authorization form until the data (study results) are statistically analyzed. After receiving authorization, your child’s current medical records will be reviewed to ensure your child is eligible to participate in this study, and his or her health status is accurately reflected in the information reported for the study.

Your child will be allowed to participate in this study only after you give your authorization to release your child’s study-related health information. You may withdraw your authorization at any time, in writing, by notifying Maryann Godshall, PhD(c), MSN, CPN, CCRN c/o Pediatric Intensive Care Unit (PICU) of Lehigh Valley Health Network. Your withdrawal of authorization will be effective upon receipt of this written notice and will allow the investigator to use only the health information that was gathered up until your withdrawal to the extent necessary to preserve the integrity of (follow through and properly complete) the research study. Your withdrawal from participation in the study itself, as discussed below, will automatically withdraw your authorization to use your health information data.

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Parent’s Initials
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Access to Your Medical/Research Records:
The Health Insurance Portability and Accountability Act’s (HIPAA’s) Standards for
Privacy of Individually Identifiable Health Information grants people the right to review
their medical records. The only medical information that will be used for this research
study will be demographical data.

Your child’s age, gender, race, grade level in school, type of burn injury (for example if
the injury occurred as a result of flame or scald), area of the body burned (to determine if
it impacts the child’s ability to participate), and the percentage of body surface area
burned will be collected for research purposes. Your child will be coded when describing
data or looking at the picture they drew. Absolutely no identifying marks will be on the
drawing. The recording of the interview where your child describes their drawing will be
identified with the code as well. This will alleviate the transcriptionist having access to
the child’s identity. Only the researcher will know the identity of your child in relation to
the demographical data. This data will be compiled using your child’s initials never their
full name. The only place the full name of your child or the parent will appear will be on
the consent and assent form. These forms will be kept secure by the researcher in a
locked file cabinet in the locked office of the Patient Care Coordinator (PCC) of the
Pediatric Intensive Care Unit (PICU). The data will be kept for 25 years as required by
Lehigh Valley Health Network (LVHN) and housed and secured in The Division of
Community Health Studies at LVHN.

Significant New Findings:
You will be told in a timely manner of any significant new findings that develop during
the course of this study and that may relate to your willingness to continue to participate.

Option of Withdrawal without Prejudice or Right to Refuse:
You or your child can decide to drop out of this study at any time. Your child’s medical
care will not be affected if your child decides not to be in the study, or if you or your
child decides to withdraw. Your child’s participation is entirely voluntary.

CONTACT INFORMATION AND TELEPHONE NUMBERS
If you have further questions about your child’s rights as a research participant, you may
contact:

Lehigh Valley Health Network
Research Participant Protection Office
12 55 South Cedar Crest Blvd
Suite 3500
Allentown, PA
610-402-2760

Version Date 3/15/2011

Parent’s Initials___

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If you or your child has questions about this research study or experiences a study-related injury during his or her participation in the study please contact:

Maryann Godshall, PhD(c), MSN, CPN, CCRN
Pediatric Intensive Care Unit
Lehigh Valley Hospital, Cedar Crest & 1-78
610-402-5500 (unit phone)
610-751-5090 (cell)

Both the research participant protection office and Maryann Godshall can be reached Monday through Friday 9:00 a.m. to 4:30 p.m.

SIGNATURE PAGE

I have been given the opportunity to ask questions and all of my questions have been answered. I understand this study’s risks, benefits and procedures, and consent to participate in this study.

You will receive a signed copy of this consent form to keep and refer to.

Participant Name ___________________________ Age __________

Parent’s Name (Printed) ___________________________ Date __________

Parent’s Signature ___________________________

CHILD ASSENT DOCUMENTATION:

I certify that the study described above has been explained to ___________________________ in age appropriate terms he or she could understand. He or she freely assented to participate in this study.

Name of person obtaining assent ___________________________

Signature of Individual obtaining parental permission and assent ___________________________ Date __________

Version Date 3/15/2011

Page 5 of 5
I, the parent of ____________________________, give the student researcher, Maryann Godshall permission to contact me about participating in the study "Exploring Learning of Pediatric Burn Patients through Storytelling." She may contact me by visiting me in my child's room, number ____________, and further explain about the study.

_________________________  ______________________
Parent Signature            Date
Appendix C

Pediatric Burn Patient Qualitative Research Study

Attention Pediatric/ PICU Charge Nurses

If a pediatric burn patient is admitted meeting the following criteria:

-Aged 5-10
-2nd or 3rd degree burn

The study will not require any involvement on your part except to identify the patients, ask the parent if they would be interested in participating, then call the researcher.

The researcher will be reading the child this burn education book, ask them to color a picture afterwards, then have the child tell her about the picture they colored.

Your help is appreciated.

Maryann is a doctoral candidate at
Duquesne University

Contact Maryann Godshall via telephone at:
610-966-8154 (home) 610-751-5090 (cell)
Do not hesitate to call with any questions. Thank you
Appendix D

Drawing 1
Drawing 2
Drawing 5
Drawing 7
Drawing 8
Drawing 9
Drawing 13