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"Sibling Closeness," a Concept Explication Using the Hybrid Model, in Siblings Experiencing a Major Burn Trauma

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Abstract

Little is known about siblings' relationships after a major burn injury. This paper used the hybrid model of concept explication to combine findings from fieldwork and synthesis of the literature in understanding close sibling relationships. Further theoretical exploration occurred with the development of different case models. Proposed key components for sibling closeness were that it is positive, warm, supportive, intimate, interconnected, and reciprocal. Siblings in a close relationship may be competitive, express rivalry and/or may be negative with each other. Findings from this project will guide future study about sibling experiences in childhood burn injury.

In 2006, 3,463 children under nineteen years of age are admitted to hospitals in the United States because of their acute burn injuries.[1] From these admissions, 52 children died. Children were hospitalized a mean of 1.27 days for every percent total body surface area (TBSA) burned at an average cost of $35,000 per day. In 2006, at Shriners Hospitals for Children Galveston (SHCG), 689 children were admitted because of a burn trauma. A burn of forty percent TBSA or greater is classified as a major burn trauma.[2] For the same year, 97 percent of children admitted to SHCG survived.[3]

When a burn occurs, the family of a child who has a major burn injury must suddenly adjust to many changes. The child with the burn injury and a parent or guardian often receive care many miles from home. Within the context of survival, the injured child may lose limbs, ears, and a nose, and be critically ill and in pain for many weeks. In many instances the parent and siblings who remain at home deal with the uncertainty of whether the child with burns will live, while roles within the family are readjusted to meet the needs of daily living.[4-8]

Once survival is assured, family members focus on the reconstructive process. For the child with burns, this could involve numerous surgeries throughout childhood at the same distant hospital, months in physical and occupational therapy, and the most important, adjustment to changes in appearance.[4,5,7] Thus, the family focuses much energy on the child with burns possibly neglecting the siblings at home.[9]

Within the context of close family relationships, socialization occurs, communication skills are acquired, emotional regulation is learned, cognitive development happens, and later in life close relationships are patterned after earlier ones.[10] Siblings spend many hours together and spans a lifetime. The sibling relationship may last longer than that of the parent-child one.[11-13]

The purpose of this paper is to begin preliminary work in the theoretical examination of the concept “sibling closeness” through application of the hybrid model of concept analysis.[14,15] The hybrid model was chosen because it is an interactive process combining both a literature review with clinical fieldwork. This paper as it relates to the concept sibling closeness describes movement from abstract to more concrete. The literature review and concept definition is integrated with clinical practice data in the final synthesis phase.[15] This is important to nurses in their care of the family and not just the ill child. A more measurable concept definition helps in the assessment of healthy sibling adjustment when one sibling experiences a life altering illness.

A concept analysis of “sibling closeness” using the hybrid model involved three phases: a *theoretical phase*, a *preliminary fieldwork phase*, and *analytic phase*.[15] The *theoretical phase* encompasses the selection of the concept, searching for relevant literature, examining concept meaning and measurement issues, and developing a working concept definition.

Relevant literature is reviewed with the focus of determining which conceptual models were chosen to guide previous studies, how concepts were operationally defined, and for the research level (e.g., whether studies were descriptive, quasi experimental or randomized control trials). In this phase, literature selection is based on clinical practice experience of the clinician (e.g., the clinician sees only one parent or caregiver at the hospital, sometimes they are crying, and they are seen frequently on the telephone). As clinicians care for families having a child with a major burn injury, they observe how family members cope and adjust to

the individual and family system stressors. In addition, stressor and coping patterns may emerge through these observations.

During the second phase, the *fieldwork phase,* the theoretical investigation is ongoing while entry into the clinical setting begins; cases are selected and preliminary analysis starts. The *analytical phase* is the final phase using the hybrid model of concept analysis. At this time findings from the literature are integrated and synthesized with fieldwork information from the participants. The end product is a written report. The written report synthesizes the theoretical exploration, the data gathered in the interviews, and analyzed during the final phase. This paper describes movement from abstract to more concrete and identifies gaps for future study. This is important to nurses because prior research into the sibling relationship has been with healthy sibling pairs or siblings of children with cancer. The concept analysis using the hybrid model is the beginning of testing a model which extends and explores how siblings describe their relationship after a life altering event. Rehabilitation nurses assess how families and family caregivers' (e.g., parents, siblings, relatives) abilities to help care for the child with the burn injury.

Hybrid Model Phases

Theoretical Phase

In the *theoretical phase*, literature regarding sibling relationships was reviewed through searching nursing, sociological, and psychological databases. Key search words included: childhood chronic illness, siblings and sibling relationships, and siblings of childhood cancer. The psychological database yielded the most research describing "sibling closeness." In addition to searching the research literature during the theoretical phase, three theoretical models were reviewed from the perspective of understanding how sibling relationships were conceptualized within these models and for the purpose of developing research proposals for "sibling closeness." This examination could also help in understanding sibling experiences over time and in the development of an interview guide for future research. The three theoretical models included the family ecology model,[16] the symbolic interaction model.[17,18] and the *Theory of Goal Attainment.*[19,20] These models were chosen because within each, individuals are conceptualized as open systems interacting and changing within their environment. The sibling in the family with a child having a burn injury is changing and developing to meet the demands the major burn injury has placed on the individual and family systems. Few changes have occurred in King's conceptual system but clarification and discussions have been ongoing.[21]

Family Ecology. Bronfenbrenner's basic premise is that the family is the context in which child development occurs.[16] The mesosystem, exosystem, and chronosystem are the three systems, according to Bronfenbrenner, which influence a family's ability for child development. In using a mesosystem model,

Bronfenbrenner recognizes there are other settings, operating simultaneously, in which the child participates where additional development does occur (e.g., daycare, church, school). In an exosystem model, family members are influenced by systems in which the child does not spend time, but that in turn will influence family's ability for child development (e.g., where parents work). In a chronosystem model, change is examined over time, within the person, and within the environment. This change is described as being a dynamic process.

Within the family ecology model, the child with the major burn trauma would be conceptualized as a non-normative (e.g., traumatic or sudden event) transition within the chronosystem model. The major burn trauma would serve as a direct influence on developmental change. Retrospective, longitudinal, or cross-sectional research designs could be implemented. Information could be gathered from various family members. As the siblings portray their home environment and daily activities, before and after the burn injury, patterns emerge which may indicate changes in child development.

Symbolic Interaction. The interaction approach, a family development theory, was first developed in sociology and social psychology.[17,18] This theory stems from work by George Herbert Mead. The theory focus is on family interactions with the environment as being symbolic. That is, people behave and interact on how they give meaning to the "symbols" in their lives.[18] The symbolic meanings define our world and those who interact with us. Units of study involve the act, interaction, person, dyad, and triad. Interactional behavior, highly developed, is described in terms of events. Theoretical assumptions involve: "human behavior is understood by the meanings of the actor; actors define meaning of context and situation."[17,18]

Key concepts for symbolic interaction theory are: socialization and role.[17] Mead describes socialization as the child "incorporating his- or her-self into the role of another."[17p151] Role, is the "individual's ability to take the roles of," or "put himself in the place of, the other individuals implicated with him in given social situations."[17p141] These roles are defined by the perceived norms, and expectations held by family members.[17] Family is a unit of interacting persons, who have a variety of roles within the family.

In an example of how research using the symbolic interaction framework could be conducted to examine the concept "sibling closeness," sibling social situations would be looked at in an attempt to understand that socialization occurs as the siblings take the role of one another. Play in children is one way children take on the role of another. When play descriptions are examined, before and after the burn injury, a child's taking of the roles of another will begin to emerge. Also, as the siblings describe their home environment and daily activities, before after the burn injury, other patterns emerge which may indicate the perceived family norms and family expectations of its members before and after this life-changing event.

Theory of Goal Attainment. Within nursing, one nurse theorist's perspective that might be considered similar to those of the symbolic interaction perspective is the Theory of Goal Attainment by Imogene King.[19,20] Frey and colleagues describe the major strengths of King's conceptual system are that it may be used with individuals, small groups, and complex organizations.[21] Few changes have occurred to King's conceptual system since its origination and include the concept of coping being added to the personal system and spirituality being added as a basic assumption about human beings. Finally, the terms conceptual framework, conceptual model, or paradigm have been changed to conceptual system.

King explains individuals, as members of groups, learn to meet basic needs through interactions. Perceptions of the environment, and use of verbal and nonverbal communication, lead to transactions. Transactions are the purposeful interactions that lead to goal attainment.[19,20]

In King's conceptual model,[20] the individual's *personal system* interacts with *interpersonal systems* (groups), and *social systems* (society). *Personal system* concepts related to this research are the concepts of perception, self, body image, growth and development. *Interpersonal systems* exist as dyads, and as triads. Sub concepts within this system pertinent to this study are role, interaction, communication, and transaction.

King's model is applicable to conceptual research of "sibling closeness" by examining perception, a personal system concept.[20] Within the personal system, King believes, through perception, an individual learns self-understanding. She describes language as a symbolic way to communicate actions, interactions, customs, and beliefs.[20p19]

Application of the interpersonal system model occurs, King suggests, when two or more individuals interact in a sequence of verbal and nonverbal goal-directed behaviors. The individual brings "knowledge, needs, goals, expectations, perceptions, and experience that influence interactions."[20p60] For King, within each interaction, personal perception leads to judgment, which leads to action. A reaction leads to an interaction that ends in the transaction occurring. Goal attainment through the transactional process allows for socialization throughout childhood development and is supported when "sibling closeness" occurs.

Three authors in particular have used King's conceptual system with similar populations as siblings of child with a major burn injury.[22-24] Two authors applied model concepts in specific patient populations. The third author tested propositions from the model.

McKinney and Dean applied King's theory in adult women in treatment for alcohol dependency who were abused as children.[24] Parallels from this article for this project could be drawn to children with burn injuries, because 20 to 25

percent of the children's burn injuries are caused by adult neglect and abuse.[2] In this article, King's conceptual system application was made in the woman's personal system, interpersonal system and social systems.

Williams applied King's conceptual system in rural nursing theory.[22] She believed the concepts of perception, growth and development, time, communication, and interaction are most helpful in explaining and predicting clients' from rural areas health care practices. She suggested that clients from these areas may not have the same access to care that others from urban areas do and this lack of access influences health care practices and health but Williams did not do model testing. Children with major burn injuries are similar to those from a rural area in that they are treated in centers far from home. Siblings and other family members at home may have decreased interactions with the injured child which could influence health care practices.

Doornbos, in the one study, tested four propositions from King's model in families of young adults with serious and persistent mental illness.[23] Theses were:

- Family health is impacted by family stressors.
- Family health is impacted by family coping.
- Family health is impacted by the family's perception of the child's level of health.
- Family health is impacted by the time since diagnosis.

Results of the theory testing showed that as family stressors increased, family health scores decreased. Family health was also impacted by family coping. A relationship was not found between the family's perception of the child's health and family health. Nor was a relationship found between the time since diagnosis and family health.

In this concept explication using the hybrid model, King's conceptual model would be used as the structure for knowledge discovery, and within the personal system the concepts of perception, self, body image, and time might be explored. Within the interpersonal system interaction, communication, roles, stress, and transaction would be important concepts. Sibling's perceptions of their experience are developed through communicating and through interactions with each other. Outcomes of these interactions influence the stress siblings are experiencing, their body image, their self, and their growth and development over time.

Fieldwork Phase – Methods

The next phase described in the hybrid model is the *fieldwork phase*. Refining and supporting validation of the concept "sibling closeness" occurred through limited and preliminary fieldwork. A narrative, life history exploration was implemented to gather data during this project phase.[15,25] Internal review boards

at the academic and clinical institutions gave project approval. This was a case study investigation of a burn injury survivor and his sibling met the interview criteria of having had a major childhood burn injury and being at least 2 years post burn injury.

Participants. Dialogue participants were a 30-year-old survivor (A) of a major burn trauma and his younger sibling (J). A was 10-years-old when he received a major flame burn, and his brother J, 8-years-old. The boys lived with their parents in a single-story home outside of a small town in the south eastern United States.

The conversation with J, over a speaker telephone was audio taped in an office at a children's burn hospital and transcribed verbatim. A's conversation was audio taped in an office, at a children's burn hospital, and also was transcribed verbatim. The interview guide developed using an ethnographic approach suggested by Spradley[26] and piloted previously with the sibling of a cancer survivor,[27] is found in Table 1 and 2. Demographic data was gathered and thermal injury severity classified according to guidelines found in Table 3.

Analytic Phase with Fieldwork and Literature Synthesis

For the analytic phase, fieldwork data of preliminary in-depth interviews were analyzed.[15] After the audio tapes were transcribed verbatim, beginning definitions of sub-concepts (e.g., closeness, rivalry, positive) and the outcomes of sorting into categories from the two siblings' transcripts were shared with instructors and classmates in a doctoral theory class. Then the analysis was further discussed with her academic advisor, a senior qualitative researcher. During the analytic phase a review of nursing, sociological, psychological literature was examined looking for support of the key components of sibling closeness which emerged from the interview data. Further concept refinement and development occurred as model cases were developed. During class discussions with peers and instructors the author struggled with accepting that a close sibling relationship had both positive and negative components. A preliminary transcript analysis with supporting research evidence was required for completion of the class. Further data analysis and manuscript development occurred through independent interactions with her academic advisor. The academic advisor was part of the audit trail as she participated from the projects beginning until manuscript submission.

Since there is a lack of research with siblings having a brother or sister having a burn injury, the psychosocial literature was examined to understand the components of a typical sibling relationship. Dunn and colleagues describe a typical sibling relationship as having both negative and positive components.[10,28-30] For this project, key components of the concept "sibling closeness" which emerged from the interview data and which were supported by the literature review are that it is positive, supportive, warm, intimate, interconnected, reciprocal, and may be competitive, have rivalry and be negative.

Descriptions of Closeness. An example of positive, supportive, warm, intimate, interconnected expression is illustrated by the following quote after A's burn injury: ". . . a little bit closer because he (A) had to come to me (J) to help him do some stuff that he wanted to but couldn't. I had to help him with it."

An example of a reciprocal expression is illustrated in this quote: "And we're close in that I (A) know that I can depend on him (J) and he can depend on me if we needs [sic] help . . ."

Examples of rivalry, competition, and being negative were found in the following dialogue from the two brothers:

Prior to the burn. "A's description follows: we had a healthy sibling rivalry between the two of us. And I tended to like, to, my humor is a little more biting, or sarcastic and my brother did not like that so that was a source of conflict a lot of the time. . . I could be physical too. There was a [sic] when he became bigger than I and at that point, I began to get less verbal because he could pin me down and do what he wanted to me."

*After the burn. "*I think there was a couple of years when we didn't get along very well. . . because of just the personality differences there were in us [even after the burn]."

Currently. "When we were little, I mean the last person we'd turn to was each other. I mean, if he tells me I'm going to tell Momma and Daddy on you. . . [Now] I mean, we fight and argue all the time."

Literature Synthesis. A literature review of the research on sibling pairs describes the most support for "sibling closeness" as being positive.[10,28-34] These researchers further describe relationships as positive (e.g., gives, shows, helps, smiles, laughs, is helpful, and affirmative) with the concepts of warmth, support, and closeness. Dunn suggests too, that siblings when facing major crises become closer and more supportive (e.g., cancer, major burn injury, traumatic brain injury).[10]

Positive. Family type (i.e., intact, single mother, stepfather, and stepmother, complex) was not related to sibling positivity in healthy sibling pairs.[28] Similar findings were reported by Kaminiski and Dewey, for two parents, single, or blended two parents.[31]

Partner affection was related to sibling positivity in both older and younger siblings for both step and non-step families.[29,33] For younger children in single-mother and complex stepfamilies sibling positivity was associated with better adjustment.[28]

Among older siblings, sisters were more positive.[29,30] In another study, older siblings who described themselves as low on warmth towards a younger sibling, made more negative comments about their sibling relationship.[30] Lack of friendly behavior toward a sibling (e.g., hitting, takes toys away, restrains, and teases) showed a relationship toward later adjustment problems such as increased externalizing behaviors.[30] Kaminiski and Dewey, in a study of ninety siblings, between the ages of 8 and 18 years-of-age, had thirty siblings per group.[31] The groups included individuals with a sibling: who was diagnosed with autism; who was diagnosed with Down syndrome; and who had no known disability. These authors, for siblings of children with Down syndrome, reported significantly higher levels of closeness and intimacy. No effect by gender was found.

Over eighty percent of the siblings, in a study by Pit-Ten Cate and Loots with siblings of children with a disability, described themselves as having fun with their brother or sister. Positive experiences, described by 43 siblings in this study, related to the 'extras' they received due to their siblings' disability.[32]

Horwitz and Kazak reported, for mothers, in a sample of 25 families of newly diagnosed child with cancer, that they believed the siblings exhibited more positive-ness (prosocial behavior) after diagnosis. These authors suggested having an ill sibling enhanced socialization.[34]

Supportive, warm, and intimate. Research supported the conceptual definition for "sibling closeness" as being supportive, warm and intimate.[28,31] Supportive, warm, and intimate is described as taking sides with, showing a strong feeling toward, and being very personal with. Kaminiski and Dewey describe siblings of children with Down syndrome as having higher nurturance (supportive), admiration (warmth), and intimacy.[31] As described earlier, for younger children in single-mother and complex stepfamilies, sibling positivity was associated with better adjustment.[28] Positivity was defined as giving emotional support, affection toward (warmth), and confiding in (intimate) their sibling by these authors.[28]

Interconnected, and reciprocal. This concept can be defined as being mutually dependent and mutually affecting one another. Research support can be found for defining "sibling closeness" as being interconnected, and reciprocal.[31,32] For siblings, in a family having a child with a disability, interconnectedness was described as doing things together.[32] A reciprocal relationship could be described as the "admiration by" and "admiration of" the sibling. Kaminisky and Dewey reported siblings in a family having a child with Down syndrome expressed "admiration by" and "admiration of" their sibling more than a sibling in a family having a child with autism or normally developed children.[31]

Rivalry, competitive, and negative. Rivalry and competition is defined as being challenged by, opposed, or in a struggle with someone. Negative denotes being unhelpful, down beat, depressed, or disappointed.

In studying non-chronically ill siblings, researchers reported negative parental behavior toward each other was associated with negative behavior from older to younger sibling.[29,33] For older and younger siblings, scoring high on externalizing problems, higher sibling conflict and rivalry was reported.[30] Kaminisky and Dewey reported in their study, male siblings regardless of group (e.g., having normal, Downs, or autistic siblings), showed greater competition (rivalry).[31]

In summary, “sibling closeness” may be defined as positive, supportive, warm, intimate, interconnected, and reciprocal.[10,12,28-32] Sibling closeness may also have rivalry, competition and/or be negative.[29-31,33]

Outcomes of a close sibling relationship. In a close sibling relationship the siblings: are sensitive to each other’s positive and negative feelings;[29-32,35] manifest acceptance of each other;[10,28,30] have open communication with each other,[10] identify with each other,[12] play with each other[30] and compete with each other.[29,30]

Case Illustrations

Constructing model cases may be helpful in concept explication. It is in constructing of cases that the investigator distances from the fieldwork and reexamines the data in relation to understanding and clarifying the concept. Case examples evolved out of this author’s extensive advanced nursing practice experience with families caring for a child with a chronic illness (e.g., children with hematology, neurological, seizure, cerebral palsy, thermal, etc. disorders) and through direct observation and participation in the clinical area. Cases described were a model case, a contrary case, and a related case.

Model Case. S and G were born 2 years apart. Before G was burned they liked to play together. They rode bikes, played football, and exchanged baseball cards, competing to see who could ride the fastest or get the most baseball cards. Occasionally, they might fight with each other. After the burn injury, S continued to keep in contact with his brother while he was hospitalized by speaking with him on the telephone or through email.

These siblings are close to each other. This closeness continues to be manifested by them talking with one another, being intimate, interconnected, and reciprocal even when one of the siblings is injured and hospitalized many miles away.

Contrary Case. T and B were twins. Prior to the burn the siblings liked different activities and played with different friends. T played baseball, swam, and climbed trees; B liked to draw, read, and sing. After B’s burn injury they continued not to talk to each other or play together.

These two siblings, even though they are twins, do not show a close sibling relationship. They like different activities, have different friends, and do not interact with each other.

Related Case. A and M's parents divorced when they were one-year and four-years-old. A, now 21, has always lived with his mother in California. M grew up in his father's Florida home. As boys they never spent time together. A's mother remarried and had a child, A now has a baby brother. Both his mother and stepfather were killed in an auto accident, his stepbrother was burned, and he is now appointed his brother's guardian.

There may well be a positive, supportive, warm, intimate, interconnected, and reciprocal sibling relationship, though the stepbrothers are vastly different in ages, and the older brother now is fulfilling the parent role by being the younger brother's guardian. The two brothers probably never will compete for the same object, nor be rivals.

Nursing Practice Implications

"Sibling closeness" concept explication using the hybrid model provided a clearer understanding of the concept "sibling closeness" after a major childhood burn injury. Both the literature review and fieldwork experience help to clarify this concept. Key components of the concept "sibling closeness" developed from the synthesis of information are that it is positive, supportive, warm, intimate, interconnected, reciprocal, and may be competitive, have rivalry and be negative.

The hybrid model helped through the use research literature and narrative data from one sibling pair clarify sub-concepts in the sibling relationship construct. The nurse who focuses on providing holistic nursing care involves body, mind, and spirit and includes more than just the child with the burn injury. The community health nurse recognizes that the child with the burn injury is part of a family unit which may have few too many interacting members, and is influenced by both one's cultural background and other external systems (e.g., church, school, work, etc.). The first step in providing holistic care involves assessing not just the injured child, but other family members, and the family as a whole for strengths and weaknesses. Because of their age and dependent state siblings at home may be more vulnerable.

The nurse in the community may first meet the child with a burn injury when they return home for physical therapy. At this time they should recognize their unique opportunity to assess the other family members not seen by the interdisciplinary burn care team. They may determine the siblings feel neglected after a major burn injury. Assessment and provisions for support of the at-home sibling was not described as happening for the participants in this interview. For the sibling, the nurse (e.g., school, community) may be the ideal person to assess the preexisting relationships (e.g., close versus distant versus conflicted), and

changes in the relationship over time as the children adjust to the times when they are separated. Other possible ways the child at home could learn more about their sibling's condition could be through pamphlets, or videos developed by the burn center.

Changes in sibling relationships may continue as the sibling becomes older or because of the child's physical appearance. By understanding the components of a close sibling relationship the nurse in practice could evaluate ongoing changes; find peer support and/or psychological counseling in the home community when needed, or refer to interdisciplinary treatment team members (e.g., social workers, psychiatrist, psychologists.[36-39] The sibling at home may provide support to the child with a burn injury throughout adulthood. As was seen by these two siblings, though they lived many miles apart, they talked frequently by mobile phone and were supportive of each other.

The nurse, to encourage development of sibling closeness by keeping communication lines open, can assist parents and help them use developmentally appropriate strategies in speaking with siblings.[36-39] Another nursing role could be as an advocate for the sibling to family members, within the health care system, and within the local and national communities.[36,40]

Some limitations of this concept analysis were that there were only two participants, who were Caucasian and had many years elapse since the injury. To strengthen findings, recruitment of siblings from diverse ethnic backgrounds, both girls and boys, being of different ages, and varying the time since burn injury would be important.

Conclusion

Use of the hybrid model in concept analysis of "sibling closeness" is the beginning of a grounded exploration on sibling experiences before and after a major burn trauma. Strengths of this model are that both theoretical and fieldwork support initial concept development. Understanding sibling closeness is the first step in a bigger project of understanding the holistic and wide range of possible experiences siblings may encounter where there is a child with a major burn injury. Project findings could give direction for specific ways to reach out to siblings and other family members at home when a major burn injury occurs.

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Table 1. Sibling interview guide – Grand Tour Questions

1. Tell me what it was like in your family before the burn, at the time of the burn, after, and now.
2. Describe your home when your brother or sister or you were burned, inside, outside.
3. Tell me what did your family do for the holidays. At special times.
4. Tell me about physical problems which other family members may have had.
5. Are there things you had to change after the burn injury?
6. Describe your relationship with your brother or sister.
7. When A was burned tell me about your family.

Table 2. Sibling interview guide – Probe Questions

Where did you live at the time (in a city or the country)?
Please describe your home:
- Single story?
- How was it painted inside and out?
- Did it have a basement or garage?
- How many rooms?
- Your bedroom?

What did you do for fun before A was burned?
How did you do in school before A was burned?
- What was your favorite subject?
- What was your least favorite subject?

What do you remember about the day A was burned?
Did you ever get angry about his illness?

Were you ever really scared?
How did A's illness and burn change your relationship with him?
What sort of advice would you give to someone else's brother or sister who has someone who was burned?
What do you think healthcare people should know if they were to care for the sibling of someone who had a life threatening burn?

Table 3. Burn Injury Classification Guide

	A burn injury for this project will be classified as "severe" if:	A burn injury for the project will be classified as "moderate" if:	A burn injury for the project will be classified as "minimal" if:
Breadth of Injury	1) TBSA > or equal to 60% & > or equal to 40% of burn at full thickness or deep second degree	1) TBSA > or equal to 30-59% & 20-39% of burn at full thickness	1) TBSA < or equal to 29% & 1-19% of burn is full thickness
Visibility of Injury	And/or 2) loss of facial features, hairline, neckline; and/or face mask, or mouth spreader	And 2) facial & neck scarring; and/or pressure garments other than face mask or mouth spreader	And 2) no facial scarring and pressure garments are not visible to others
Physical Loss from Injury	And/or 3) significant scarring or loss of function of primary or secondary sexual organs, hands, or feet: limb amputations, loss of digits, brain anoxia, loss of sensory functions (permanent loss of eyesight, hearing, voice) or joint fusion	And/or 3) significant scarring or partial loss of digits without loss of ADL independence	And 3) no significant scarring or loss of function

Mancuso, M. G., Bishop, S., Blakeney, P., Robets, R., & Gaa, J., (2003).[9]