CHILD LIFE COUNCIL EVIDENCE-BASED PRACTICE STATEMENT

SUMMARY

CHILD LIFE ASSESSMENT: VARIABLES ASSOCIATED WITH A CHILD'S ABILITY TO COPE WITH HOSPITALIZATION

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Rebecca Mador, Wendy Lee, and Michelle Gibson, research assistants at the Hospital for Sick Children, are gratefully acknowledged for their contributions in the preparation of this statement.

The purpose of this statement is to identify key variables associated with children's ability to cope with hospitalization and to inform child life practice by serving as a guide for initial assessments of hospitalized children. After systematically evaluating 39 articles retrieved from searches conducted on PsycINFO, MEDLINE and CINAHL, 26 studies were included in this statement. Although four categories of variables emerged (child, family, illness and medical experience), only the most significant variables are reviewed here. For a more comprehensive analysis of variables, please refer to the complete statement on assessment.

KEY VARIABLES ASSOCIATED WITH CHILDREN'S ABILITY TO COPE WITH HOSPITALIZATION

Of the child variables, the *child's temperament* and related *coping style* were seen as significant factors. Temperament can be defined as an individual's consistent and stable pattern of behavior or reaction, one that persists across time, activity, and context. Studies investigated the relationship between a child's temperament and his or her response to hospitalization. Children who responded best to hospitalization tended to be more positive in mood, more predictable, easier to distract, more approachable and adaptable while being less reactive to stimuli[9, 10]. In addition, McClowry found that temperament accounts for as much as 50% of the variance in children's behavioral responses prior to and up to one month after hospitalization[9].

Closely associated with temperament is the child's coping style. Coping is the process used to alter, manage, or tolerate a stressful situation[15]. An individual's preferred style of coping is a combination of his or her temperament as well as an appraisal of the stressful situation. Researchers have typically divided the coping strategies children use into two categories: avoidant and vigilant[16, 17]. Avoidant coping occurs when children restrict their thoughts about an upcoming event, deny their worries, and detach from a stressful stimulus. Vigilant coping strategies consist of seeking out detailed information and alertness to a stressful stimulus. LaMontagne et al. found that vigilant coping was associated with a timely return to normal activities over the course of recovery[16]. Similarly, Knight et al. found that children who sought information about their upcoming procedure exhibited less physiological and affective distress than children who denied the experience or avoided information[18].

In terms of family variables, parental anxiety is most strongly correlated with children's adverse responses during hospitalization[10, 15, 16, 20, 21, 24, 26, 29]. Maternal anxiety not only predicts children's emotional distress[10, 15, 16, 20, 24, 29], but also correlates positively with children's distress during invasive procedures[21, 26]. In one study, high levels of maternal state anxiety at first contact (6-16 hours following the child's admission to the intensive care unit) was found to significantly increase a child's likelihood to engage in negative behavioral responses such as hyperactivity and aggression[20]. Maternal anxiety also mediates the positive effect of an intervention on hospitalized children's post-hospital behavior, suggesting that it may be beneficial to provide support to highly-anxious mothers in order to enhance the psychosocial outcomes of hospitalized children[30].

The types and number of medical experiences is associated with psychological trauma in pediatric populations. In particular, studies reveal that the *number of invasive procedures* experienced by a child is positively associated with the level of stress, anxiety and fear experienced during and following hospitalization[22, 25, 28, 29]. In particular, some studies found that the number of invasive procedures was a strong predictor of chil-

dren's psychological distress, manifested in symptoms of depression, anxiety, fear and post-traumatic stress[25, 28].

Summary

In summary, the key issues for child life assessment are the child's temperament and coping style, the parental level of anxiety and the number of invasive medical procedures. Although child life specialists have a primary role in psychosocial care, evidence-based practice models support inter-professional collaboration (i.e. child life and social work) as a means of addressing complex issues associated with child and family adaptation to hospitalization.

For the detailed information and studies reviewed to support this statement, review the complete version of the evidence-based practice statement on assessment, available through the Resource Library section of the CLC Web site (www.childlife.org).

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Completed for the Child Life Council in July 2008

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PREAMBLE

The purpose of this statement is to identify key variables associated with children's ability to cope with hospitalization. Based on the best empirical evidence, this statement can inform child life practice by serving as a guide for initial assessments of hospitalized children. The goal of an initial assessment is to determine a child's risk for negative psychological outcomes due to hospitalization and to plan appropriate interventions.

This statement is based on an exhaustive search of the literature, which was conducted on i) PsycINFO, which records the literature from psychology and related disciplines such as medicine, psychiatry, nursing, sociology, and education; ii) MEDLINE, which focuses on biomedical literature; and iii) CINAHL, the Cumulative Index to Nursing & Allied Health Literature, which covers literature relating to nursing and allied health professions. A variety of keywords and combinations such as "hospitalized children," "coping," "psychological adaptation" and "stress" were used to conduct the search (See Appendix A for a list of search terms). The search was completed in March 2007 with the assistance of a medical librarian. Searches revealed approximately 150 articles regarding coping and adjustment. After the results were sorted to exclude repeats and non-empirical based literature, 39 articles remained. These articles were retrieved and evaluated based on the scoring of 2 independent raters using "The Quality of Study Rating Form"[1]. Articles that received a rating of at least 60 out of 100 points were selected for inclusion in this statement. Any article that scored between 55 and 65 points was scored again by a second rater to confirm inclusion or exclusion. Finally, twenty five articles met the selection criteria (See Appendix B for a complete list of citations).

Since evidence-based practice represents an integration of the best available research along with clinical experience[1], this statement was reviewed by certified child life specialists across North America in order to ensure clinical applicability. In addition, evidence-based practice acknowledges patient preferences and needs when determining the most appropriate clinical interventions for the child and family.

CHILD LIFE ASSESSMENT: WHY IS IT IMPORTANT?

Children's negative responses to hospitalization and medical procedures are well documented in the literature[2-6]. In an effort to reduce the negative impact of hospitalization on pediatric patients, child life specialists must determine whether a child is at risk for experiencing negative psychological sequelae. Given that the quality and intensity of a child's reaction to hospitalization can be influenced by many variables, child life specialists must consider the most significant variables[7, 8] when conducting assessments. Without an understanding of these variables, accurate assessments of hospitalized children are not possible and the ability to engage in evidence-based practice is thwarted.

HOW STUDIES IDENTIFY FACTORS ASSOCIATED WITH COPING

Research in this area is complex, predominantly because several variables can be associated with children's ability to cope with hospitalization. For the most part, this research is quanti-

tative and correlational in design. These studies typically attempt to link results obtained through self-report scales completed by children and their parents with behavioral outcomes. It must be noted, however, that correlational designs do not allow conclusions to be drawn with respect to causality. Despite the shortcomings of correlational designs, the findings reviewed here identify key issues associated with how children cope with hospitalization. From the studies reviewed in this statement, four categories of variables emerged:

1) Child variables
2) Family variables
3) Illness variables
4) Medical experiences

Child Variables

Temperament

Temperament can be defined as an individual's consistent and stable pattern of behavior or reaction, one that persists across time, activity, and context. Generally, an individual's temperament consists of nine dimensions including activity level, adaptability, threshold of responsiveness, mood, intensity of reaction, distractibility, attention span and persistence, and predictability[9]. Two studies investigated the relationship between a child's temperament and his or her response to hospitalization. Children who responded best to hospitalization tended to be more positive in mood, more predictable, easier to distract, more approachable and adaptable while being less reactive to stimuli[9, 10]. In addition, McClowry found that temperament accounts for as much as 50% of the variance in children's behavioral responses prior to and up to one month after hospitalization[9].

The level of anxiety exhibited by a child in hospital can reflect his or her underlying temperament and associated responses to stressful situations. In addition, distinctions need to be made between the different types of anxiety. For instance, trait anxiety, which refers to the stable and relatively constant tendency to be anxious, has a significant influence on the quality of a child's reaction to hospitalization[11-13]. Children with higher trait anxiety are significantly more likely to perceive their coping as ineffective and appraise hospitalization as a stressful experience than are children with lower trait anxiety[11, 12]. Trait anxiety has also been found to positively correlate with a child's self-reported fear, indicating that highly anxious children require additional support in order to cope effectively with stressful events[13]. In addition to trait anxiety, state anxiety refers to anxiety created as a result of a specific experience. Tiedeman and Clatworthy found that this form of anxiety dissipates from the time of admission to discharge for hospitalized children between the ages of 5 and 11[14].

In the event that a child life specialist is presented with an anxious child, discussions with the child and family can help determine whether the child is exhibiting a form of trait or state anxiety. For example, if the child is normally anxious in other areas of his or her life, this may be indicative of a more pervasive form of anxiety. In this case, child life interventions supplemented by a referral to psychiatry may be necessary in order to rule out an underlying anxiety disorder.

Coping Style

Coping is the process used to alter, manage, or tolerate a stressful situation[15]. An individual's preferred style of coping is a combination of his or her temperament as well as an appraisal of the stressful situation. Researchers have typically divided the coping strategies children use into two categories: avoidant and vigilant[16, 17]. Avoidant coping occurs when children restrict their thoughts about an upcoming event, deny their worries, and detach from a stressful stimulus. Vigilant coping strategies consist of seeking out detailed information and alertness to a stressful stimulus. LaMontagne et al., found that vigilant coping was associated with a timely return to normal activities over the course of recovery[16]. In a related study, LaMontagne et al., classified children based on how they focused on aspects of impending surgery. Children who focused their attention on concrete aspects of the experience (i.e., details about recovery) tended to use vigilant coping and were able to return to their usual activities sooner. Children who had less information about the procedure (provided few descriptions of the experience, tended to avoid information) had the least favorable outcome on the "activities" subscale of the Youth Self-Report and Profile which assesses the child's usual activities (i.e., sports, chores, etc.)[17]. Similarly, Knight et al., found that children who sought information about their upcoming procedure exhibited less physiological and affective distress than children who denied the experience or avoided information[18].

However, other studies suggest that the relationship between coping style and outcomes is more complex[16, 19]. Lowery Thompson found that children who used either information-seeking (vigilant) or information-limiting (avoidant) coping behaviors were less anxious than children using a combined approach[19]. Furthermore, different strategies can be associated with favorable outcomes at different time periods; while avoidant strategies were found to be more effective in reducing

stress initially after surgery, children using a vigilant approach reported better long-term recovery[16].

In one study, children's baseline behavior was assessed as a predictor for how a child might behave during and after hospitalization. For instance, if a child is more likely to exhibit internalizing behaviors (i.e. anxiety, depression) prior to hospitalization, this coping style can consistently predict later internalizing behaviors following hospitalization. The same was found true for externalizing behaviors such as aggression and hyperactivity[20].

Although the findings reveal complexities, children's coping styles appear to predict psychological outcomes related to hospitalization. For the most part, avoidant characteristics appear to be less effective at ameliorating stressors associated with hospitalization. Therefore, a child's coping style as shown by his or her willingness to seek and accept information can predict the degree of psychological risk.

Age

Several studies included in this review examined the relationship between a child's chronological age and his or her likelihood of experiencing negative behavior and/or psychological sequelae in response to hospitalization1[3, 14, 21-24]. It should be noted that these studies did not make distinctions between chronological age and developmental levels. Despite the fact that older children (latency age) are assumed to cope better with hospitalization than younger children, the literature indicates that the relationship is more complex. For example, some studies found no link between a child's age and his or her response to hospitalization, post-behavioral upset, anxiety or fear[19, 25]. Conversely, some researchers found that younger children were more likely to be anxious and fearful compared to older children[14-16, 20-24, 26]. Younger children were also less likely to feel in control of their health as measured by the Children's Health Locus of Control Scale[22].

The impact of age on children's coping strategies is also unclear. Assessed by the Preoperative Mode of Coping Interview, two studies cited contradictory findings: Lowery Thompson found that age is not related to children's coping behavior while LaMontagne et al., discovered that older children are more likely to use effective coping strategies[16, 19]. Given these discrepant findings, it cannot be assumed that the age of the child will accurately predict the degree of upset experienced by a hospitalized child. Hence, it is critically important to examine other variables in addition to age when making assessments regarding coping.

Gender

Many studies in this review examined the effects of gender on a child's response to hospitalization[11-14, 19, 20, 22, 23, 25-28]. However, the findings from these studies are inconclusive. Tiedeman and Clatworthy found that boys tended to be more anxious than girls at admission, discharge and post-discharge, while other studies found that girls were more anxious than boys[20, 22, 25, 27] and finally some concluded that gender was unrelated to anxiety or the expression of fear[11-13, 19]. A number of studies also revealed that gender differences are not evident in behavioral upset[23], focus of attention[17], coping strategies and perception of its effectiveness11 and the type of events children appraised as stressful during hospitalization[12].

Family Variables

Parental Anxiety and Distress

Of all the family variables, parental anxiety is most strongly correlated with children's adverse responses during hospitalization[10, 15, 16, 20, 21, 24, 26, 29]. Maternal anxiety not only predicts children's emotional distress[10, 15, 16, 20, 24, 29], but also correlates positively with children's distress during invasive procedures[21, 26]. In one study, high levels of maternal state anxiety at first contact (6-16 hours following the child's admission to the intensive care unit) was found to significantly increase a child's likelihood to engage in negative behavioral responses such as hyperactivity and aggression[20]. Maternal anxiety also mediates the positive effect of an intervention on hospitalized children's post-hospital behavior, suggesting that it may be beneficial to provide support to highly-anxious mothers in order to enhance the psychosocial outcomes of hospitalized children[30].

Only one study found that at the time of admission to the hospital, parental anxiety did not significantly affect child's anxiety[14]. However, there was a significant relationship between parental anxiety and children's anxiety following hospitalization. These inconsistent findings were partially explained by the fact that different questionnaires were used at various times during hospitalization.

Family Characteristics

Three studies provided an in-depth examination of family characteristics associated with post-hospitalization outcomes[10, 20, 23]. The main variables included the marital status of a child's parents[20], family size, and family composition[10, 23]. One study by Small & Melnyk (2006) found that marital status significantly predicted a child's likelihood of displaying internalizing (focused inward, i.e. anxiety, depression) or externalizing

(focused outward, i.e. aggression, hyperactivity) behaviors post-hospitalization[20]. For example, mothers who had been married more than once had children who demonstrated more internalizing behaviors three months post-hospitalization than children whose mothers had not been married or were married for the first time. Additionally, mothers' anxiety and level of involvement to the emotional needs of the child were primary predictors of internalizing and externalizing behaviors, as well as post-hospitalization anxiety. However, family size and composition were found to be unrelated to a child's post-hospital adjustment[10, 20, 23].

Socioeconomic Status

Studies have investigated the relationship between a family's socioeconomic status (SES) and a child's response to hospitalization[10, 13, 20, 22, 23]. While two studies found no association between SES and children's responses to hospitalization[10, 23,20], Hart & Bossert found that children with higher trait anxiety from families with a lower yearly income reported a higher amount of fear[13]. In terms of maternal education, Rennick et al., reported that children with mothers who had higher education were more likely to feel in control of their health[22].

Parental Presence and Involvement

Studies have also sought to determine the extent to which a parent's presence is associated with how a child responds to hospitalization. In a pediatric emergency care study, 96 children were administered a venipuncture[31]. The children were randomly assigned to two groups; one in which a parent was present, and another in which a parent was absent. Both parents and children exhibited less distress when a parent was present during the procedure. In contrast, another study randomly assigned 20 children to either a condition with mother present during an injection and another condition where the mother was absent[32]. Children's behavior during and after the injection was rated as significantly more negative for the children in the mother-present condition. The authors concluded that children may feel more comfortable protesting during a procedure when a parent is present.

The level of parental involvement in the care of hospitalized children can exert significant influence on a child's ability to cope with medical experiences[10, 20, 24, 30]. In one controlled study by Mazurek Melnyk and Feinstein, researchers found that when parents received information regarding common child behaviors during hospitalization, their participation in the care of their child increased[30]. In turn, these children experienced less negative behaviors following hospitalization. To measure the level of maternal involvement in care, the Index of Parent Participation was used (IPP; Melynk, Alpert-Gillis, Hensel, Cable-Beiling & Rubenstein, 1997)[33]. The scale consists of a 36-item checklist of self-reported parenting behaviors during childhood hospitalization. Examples of these behaviors included playing, bathing, feeding and explaining medical procedures to the child. The authors yielded scores which reflected low, moderate and high levels of involvement. The study found that moderate parental involvement resulted in positive outcomes for hospitalized children while excessive or limited parental involvement was shown to result in negative outcomes. For instance, children with highly involved parents exhibited worse post-hospital adjustment, more internalized coping such as anxiety and depression[24], and more behavioral disturbance than children with less involved parents[10, 20, 24].

Illness Variables

Chronic vs. Acute Illness

Few studies have investigated whether children with chronic or acute conditions experience hospitalization differently. In one study, the degree of children's fears was not associated with whether they had chronic or acute illnesses[13]. However, in another study, acutely ill children were more likely to perceive their coping as effective than were chronically ill children[11]. Bossert compared chronically ill and acutely ill children on their perceptions of what is stressful. Chronically ill children identified more intrusive events and acutely ill children identified more physical symptoms as stressful[12]. In regards to post-hospital behavior, children from intensive care were compared with those from a general medical ward. Scores on post-hospital behavior scales revealed similar findings for the two samples[34].

Length of Hospitalization

In two studies, the length of hospitalization was examined in regards to children's adjustment to hospitalization[14, 22]. While this variable appeared to have minimal effects on children's responses to hospitalization in one study[22], another study found that shorter hospital stays were associated with higher levels of anxiety by children at discharge[14].

Medical Experiences

Exposure to Invasive Procedures

Studies reveal that the number of invasive procedures experienced by a child is positively associated with the level of stress, anxiety and fear experienced during and following hospitalization[22, 25, 28, 29]. In particular, two studies found that the

number of invasive procedures was a strong predictor of children's psychological distress, manifested in symptoms of depression, anxiety, fear and post-traumatic stress[25, 28]. Rennick et al., found that children subjected to a higher number of invasive procedures tended to have more intrusive thoughts and avoidance behaviors. These findings were particularly noteworthy for younger, more severely ill children who had endured many invasive procedures[22]. Rennick et al., replicated these findings and found that children between the ages of 6 to 17 years who were exposed to high numbers of invasive procedures experienced the most psychological sequelae post discharge[28]. Only one study did not find an association between the number of medical procedures and children's depressive or anxious symptoms. The authors hypothesize that participants in their study had experienced frequent hospitalizations and may have learned effective coping strategies[15].

Previous Hospitalizations

The research on whether previous hospitalization has an affect on a child's ability to cope with hospitalization is inconclusive. Some research found that previous hospitalizations are not related to the level of anxiety or coping experienced by the child[19, 25] while in a study by Tiedeman and Clatworthy, children with no previous hospital experience were more anxious than those who had been in hospital before, alluding to the potential benefits of being familiar with the hospital setting[14]. Support for these findings can be found in Wells and Schwebel where children with fewer previous surgeries exhibited greater disturbance and anxiety[24].

Gaps in the Literature

Since studies report mixed findings on a variety of variables (i.e. age, previous hospitalizations), additional research using randomized designs with cross-sectional samples could reveal the degree to which particular variables impact on children of various ages. For instance, there is a lack of studies that compare children of different ages with a variety of diagnoses or chronic conditions. Current research has also made no distinctions between chronological age and the developmental levels of the participants. This issue may have bearing on research findings given that children sampled from pediatric settings are more likely to have a range of developmental delays which can affect their ability to cope. In addition, future research should address whether particular diagnoses and associated treatment plans place children at greater risk for negative psychological outcomes. Taken together, this information has implications for determining appropriate staff to patient ratios in specific medical areas where child life may be needed most.

According to Rodriguez and Boggs, the evaluation of emotional distress in pediatric settings is further complicated by the scarcity of measures designed specifically for the *assessment of children who are hospitalized*[23]. Given that a parent's anxiety is strongly correlated with a child's anxiety, additional measures which address a range of family variables are also needed. Finally, the literature lacks relevant discourse on issues related to culture (i.e. values, beliefs), diversity and family background.

Conclusions

A systematic review of the best available research revealed key variables to be considered in a child life assessment. In particular, the child's temperament, and the level of child and parental anxiety (state or trait) are very significant factors. Small and Melnyk underscore the importance of baseline knowledge concerning a child's usual behavior patterns, citing that this information can identify patients most in need of psychosocial interventions during and following hospitalization[20]. Therefore, an initial assessment of the child's temperament is an important place to start in addition to determining parental stress levels. An assessment of these key variables will help determine whether the child is experiencing state or trait anxiety. Indeed, highly anxious children may require more emotional support in order to deal with stressful events and this may be particularly significant for children who have experienced many invasive medical procedures. Finally, the research tells us that we cannot assume a child will cope poorly solely because he or she is young without considering other important variables.

The research in this area presents a complicated array of issues for child life consideration. For child life specialists who observe parents exhibiting or reporting high stress levels, collaborating with other health care professionals such as social work can make a significant difference in patient and family outcomes. Although child life specialists play an important role in children's adaptation to hospitalization, evidence-based practice models support inter-professional collaboration as a means of strategically addressing complex issues associated with how children and their parents cope with medical challenges[35-41].

Appendix A

Three databases were used to generate literature searches. A variety of search words were used to conduct literature searches with the assistance of a medical librarian.

MEDLINE	
Category	**Search Words**
Coping	Psychological adaptation, adjustment, stress, psychological stress, social adjustment
Hospitalized Children	Inpatient (limited to all children), hospitalized child, hospitalized adolescent
PsycINFO	
Category	**Search Words**
Coping	Coping behavior, adjustment, emotional adjustment, social adjustment
Hospitalized Children	Hospitalized patients (limited to childhood and adolescence)
CINAHL	
Category	**Search Words**
Coping	Child adaptation to hospitalization, psychological adaptation, social adjustment,
Hospitalized Children	Hospitalized infant, hospitalized children, hospitalized adolescent, inpatients (age limited to 0-18 years)

Appendix B

Twenty-five articles were evaluated using "The Quality of Study Rating Form" (Gibbs, 1989). Articles that scored between 60 and 100 points were selected for inclusion in this statement.

Bossert E. Factors influencing the coping of hospitalized school-age children. *Journal of Pediatric Nursing*. 1994;9(5):299-306.

Bossert E. Stress appraisals of hospitalized school-age children. *Children's Health Care*. 1994;23(1):33-49.

Carson DK, Council JR, Gravley JE. Temperament and family characteristics as predictors of children's reactions to hospitalization. *Developmental and behavioral pediatrics*. 1991;12(3):141-147.

Dahlquist LM, Power TG, Cox CN, Fernbach DJ. Parenting and child distress during cancer procedures: A multidimensional assessment. *Children's Health Care*. 1994;23(3):149-166.

Fosson A, Martin J, Haley J. Anxiety among hospitalized latency-age children. *Developmental and behavioral pediatrics*. 1990;11(6):324-327.

Hart D, Bossert E. Self-reported fears of hospitalized school-age children. *Journal of Pediatric Nursing*. 1994;9(2):83-90.

Jacobsen PB, Manne SL, Gorfinkle K, Schorr O, Rapkin B, Redd WH. Analysis of child and parent behavior during painful medical procedures. *Health Psychology*. 1990;9(5):559-576.

Knight RB, Atkins A, Eagle CJ, et al. Psychological stress, ego defenses, and cortisol production in children hospitalized for elective surgery. *Psychosomatic Medicine*. 1979;41(1):40-49.

LaMontagne LL, Hepworth JT, Johnson BD, Cohen F. Children's preoperative coping and its effects on postoperative anxiety and return to normal activity. *Nursing Research*. 1996;45(3):141-147.

LaMontagne LL, Johnson JE, Hepworth JT, Johnson BD. Attention, coping, and activity in children undergoing orthopaedic surgery. *Research in Nursing & Health*. 1997;20:487-494.

LaMontagne LL, Wells N, Hepworth JT, Johnson BD, Manes R. Parent coping and child distress behaviors during invasive procedures for childhood cancer. *Journal of Pediatric Oncology Nursing*. 1999;16(1):3-12.

Lowery Thompson M. Information-seeking coping and anxiety in school-age children anticipating surgery. *Children's Health Care*. 1994;23(2):87-97.

Mabe PA, Treiber FA, Riley WT. Examining emotional distress during pediatric hospitalization for school-aged children. 1991;20(3):162-169.

McClowry SG. The relationship of temperament to pre- and post-hospitalization behavioral responses of school-age children. *Nursing Research*. 1990;39(1):30-35.

Mazurek Melnyk B, Feinstein NF. Mediating functions of maternal anxiety and participation in care on young children's post-hospital adjustment. *Research in Nursing & Health*. 2001;24:18-26.

Melnyk, B.M., Alpert-Gillis, L.J., Hensel, P.B., Cable-Beiling, R.C., & Rubenstein, J.S. (1997). Helping mothers cope with a critically ill child: A pilot test of the COPE intervention. *Research in Nursing & Health*, 20, 3–14.

Rennick JE, Johnston CC, Dougherty G, Platt R, Ritchie JA. Children's psychological responses after critical illness and exposure to invasive technology. *Developmental and behavioral pediatrics*. 2002;23(3):133-144.

Rennick JE, Morin I, Kim D, Johnston CC, Dougherty G, Platt R. Identifying children at high risk for psychological sequelae after pediatric intensive care unit hospitalization. *Pediatric Critical Care Medicine*. 2004;5(4):358-363.

Rodriguez CM, Boggs SR. Behavioral upset in medical patients - Revised: Evaluation of a parent report measure of distress for pediatric populations. *Journal of Pediatric Psychology*. 1994;19(3):319-324.

Saylor CF, Pallmeyer TP, Finch AJ, Eason L, Trieber F, Folger C. Predictors of psychological distress in hospitalized pediatric patients. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1987;26(2):232-236.

Shaw EG, Routh DK. Effect of mother presence on children's reaction to aversive procedures. *Journal of Pediatric Psychology*. 1982;7(1):33-42.

Small L, Melnyk BM. Early predictors of post-hospital adjustment problems in critically ill young children. *Research in Nursing & Health*. 2006;29:622-635.

Tiedeman ME, Clatworthy S. Anxiety responses of 5- to 11-year-old children during and after hospitalization. *Journal of Pediatric Nursing*. 1990;5(5):334-343.

Wells RD, Schwebel AI. Chronically ill children and their mothers: Predictors of resilience and vulnerability to hospitalization and surgical stress. *Developmental and behavioral pediatrics*. 1987;8(2):83-89.

Wolfram RW, Turner ED, Philput C. Effects of parental presence during young children's venipuncture. *Pediatric Emergency Care*. 1997;3(5):325-328.

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12. Bossert E. Stress appraisals of hospitalized school-age children. *Children's Health Care*. 1994;23(1):33-49.
13. Hart D, Bossert E. Self-reported fears of hospitalized school-age children. *Journal of Pediatric Nursing*. 1994;9(2):83-90.
14. Tiedeman ME, Clatworthy S. Anxiety responses of 5- to 11-year-old children during and after hospitalization. *Journal of Pediatric Nursing*. 1990;5(5):334-343.
15. Mabe PA, Treiber FA, Riley WT. *Examining emotional distress during pediatric hospitalization for school-aged children*. 1991;20(3):162-169.
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17. LaMontagne LL, Johnson JE, Hepworth JT, Johnson BD. Attention, coping, and activity in children undergoing orthopaedic surgery. *Research in Nursing & Health*. 1997;20:487-494.
18. Knight RB, Atkins A, Eagle CJ, et al. Psychological stress, ego defenses, and cortisol production in children hospitalized for elective surgery. *Psychosomatic Medicine*. 1979;41(1):40-49.
19. Lowery Thompson M. Information-seeking coping and anxiety in school-age children anticipating surgery. *Children's Health Care*. 1994;23(2):87-97.
20. Small L, Melnyk BM. Early predictors of post-hospital adjustment problems in critically ill young children. *Research in Nursing & Health*. 2006;29:622-635.
21. Dahlquist LM, Power TG, Cox CN, Fernbach DJ. Parenting and child distress during cancer procedures: A multidimensional assessment. *Children's Health Care*. 1994;23(3):149-166.

22. Rennick JE, Johnston CC, Dougherty G, Platt R, Ritchie JA. Children's psychological responses after critical illness and exposure to invasive technology. *Developmental and behavioral pediatrics*. 2002;23(3):133-144.

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