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Readiness for Discharge in Parents of Hospitalized Children

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Abstract: *Parental preparation for a child's discharge from the hospital sets the stage for successful transitioning to care and recovery at home. In this study of 135 parents of hospitalized children, the quality of discharge teaching, particularly the nurses' skills in "delivery" of parent teaching, was associated with increased parental readiness for discharge, which was associated with less coping difficulty during the first 3 weeks postdischarge. Parental coping difficulty was predictive of greater utilization of posthospitalization health services. These results validate the role of the skilled nurse as a teacher in promoting positive outcomes at discharge and beyond the hospitalization*.

The decision to discharge a child from the hospital is a complex and multifaceted decision for the health care team. Once the child has reached explicitly or implicitly established physiologic criteria and the parents have demonstrated the knowledge and skills needed to assume care responsibilities for the child's continuing care needs at home, the child and family are considered ready for discharge by their health care team. The parents' perceptions of their own and their child's readiness for discharge may be different from those of the child's care team (Baker, 1991; Bernstein et al., 2002). Parental readiness may affect the timing of discharge and subsequent postdischarge follow-up needs and outcomes (Smith & Daughtrey, 2000; Suderman, Deatrich, Johnson, & Sawatzky-Dickson, 2000). The challenges of the transition to care at home following a newborn infant's or child's hospitalization have been well documented in descriptive reports and qualitative research (Bailey & Caldwell, 1997; Bent, Keeling, & Routson, 1996; Bissell & Long, 2003; Kenner & Lott, 1990; Smith & Daughtrey, 2000; Snowdon & Kane, 1995; Stephens, 2005; Turrell, Davis, Graham, & Weiss, 2005; Worthington, 1995). Quantitative models for measurement of parental readiness for discharge, the factors that promote readiness, and the consequences of sending parents home who feel unprepared require more substantive attention in the nursing literature.

The purpose of this study was to identify predictors and outcomes of parental perceptions of their own readiness for their hospitalized child's discharge. Specifically, the aims of the study were to investigate the predictive relationships between the following:

1. Parent, child, and hospitalization characteristics and parental readiness for hospital discharge;
2. Nursing practices (discharge teaching and care coordination) and parental readiness for hospital discharge;
3. Parental readiness for hospital discharge and postdischarge coping difficulty; and
4. Parental readiness for hospital discharge and utilization of postdischarge support and health services.

Background

Readiness for hospital discharge has been described as a multidimensional concept that represents an estimate of a patient's ability to leave an acute care facility (Steele & Sterling, 1992; Titler & Pettit, 1995). From the provider's perspective, discharge readiness is a judgment based on established criteria for “safe” discharge (Higson & Bolland, 2001; Korttila, 1991), although length of stay and clinical readiness as judged by the provider may be impacted by utilization management and reimbursement practices. From the perspective of the patients and their families, it is a perception of preparedness, ability, confidence, and desire for the transition to home-based recovery and care (Bissell & Long, 2003). Recognizing that patients are discharged in an intermediate rather than in a later stage of recovery (Korttila, 1991), discharge readiness assessment of the pediatric patient should extend beyond criteria for physiologic stability (Merritt & Raddish, 1998) to consideration of the capacity, abilities, availability, and accessibility of family members and community support for posthospitalization care needs (American Academy of Pediatrics/American College of Obstetricians and Gynecologists [AAP/ACOG], 2002; Domanski, Jackson, Miller, & Jeffrey, 2003).

Dimensions of readiness for discharge include physical variables such as vital signs, pain or discomfort level, strength and energy, and absence of complications such as nausea and vomiting or excessive bleeding; functional ability and mental/ emotional state; preparedness, ability, confidence, and competence to manage self-care at home; family readiness, availability of social support, and access to health care system and community resources (Bissell & Long, 2003; Fenwick, 1979; Titler & Pettit, 1995). The AAP has recommended that physicians base their discharge decisions for hospitalized high-risk neonates on evaluation of four dimensions of readiness for discharge: neonatal readiness, home care plan readiness, family and environmental readiness, and community and health systems readiness (AAP/ACOG, 2002). Similar recommendations are relevant for the discharge of older pediatric patients. Anticipated posthospital care needs, family and child psychosocial issues, community resources, and organizational coordination are important pediatricdischarge planning considerations (Domanski

et al., 2003).

The hospitalized child presents unique challenges for parents preparing for discharge. The age of the child may influence parental readiness because children have age-related vulnerabilities that necessitate special planning and selection of resources for both their medical and developmental needs (Hamilton & Vessey, 1992). Children particularly at risk for poor outcomes after discharge include those with multiple or complex medical conditions or social situations, those with previous admissions, those with complicated care needs, and those with a parent who is stressed or unable to manage the level of posthospital care needed by the child (Domanski et al., 2003).

Whether taking a newborn home for the first time or an older child after a first or repeat hospitalization, parents have described the discharge of a hospitalized child as a stressful, anxiety-provoking experience (Bent et al., 1996; Melnyk, 2000; Smith & Daughtrey, 2000; Snowdon & Kane, 1995; Tiedeman, 1997). Anxiety is often the result of perceptions of lack of preparedness and doubts about competence to manage their child's care at home (Baker, 1991; Smith & Daughtrey, 2000; Suderman et al., 2000) that may influence perceptions of readiness for discharge and satisfaction with the hospital experience (Marino & Marino, 2000). Anxiety about the child's present condition and future life course (Firth, Grimes, Poppleton, Hall, & Richold, 2000) as well as the personal, family, and work-life disruptions and financial concerns related to medical care costs or parental work may affect parents' ability to learn how to care for their recovering child and their readiness to assume care responsibilities at home (Malin & Johnson, in review; Melnyk & Alpert-Gillis, 1998; Snowdon & Kane, 1995; Suderman et al., 2000).

Teaching is the primary mechanism used by nurses to prepare patients and their families for discharge and the transition home (Titler & Pettit, 1995). Discharge preparation should begin on admission (Smith & Daughtrey, 2000). Parental information needs for the postdischarge period include information about the child's disease process and expected recovery, special care needs including administration of medications and treatments, and prevention of recurrence (Snowdon & Kane, 1995). Anxiety reduction and confidence building in managing the realities of care at home, child behavior, and family life are critical elements in promoting a positive postdischarge transition (Bissell & Long, 2003; Melnyk, 1994; Smith & Daughtrey, 2000; Suderman et al., 2000). The opportunity to engage in providing care to the child prior to discharge is a successful strategy for confidence and competence building (Costello & Chapman, 1998). Satisfaction with the hospitalization experience is increased when nurses teach parents what they need to know to care for their child at home (Marino & Marino, 2000). However, learning may be disrupted during

the hospitalization due to environmental constraints and constant care demands (Snowdon & Kane, 1995). Gaps in discharge teaching are often not evident until after discharge when difficulties in managing care at home arise. Many parents report being unprepared for the realities of caring for their child at home (Baker, 1991) with continuing needs for information and professional support during the post-discharge period (Bailey & Caldwell, 1997; Kenner & Lott, 1990; Smith & Daughtrey, 2000; Snowdon & Kane, 1995).

In addition to discharge education, care coordination activities improve perceptions of discharge readiness, increase home care knowledge, and reduce concerns about managing care at home (Kleinpell, 2004). The goal for pediatric discharge planning is to facilitate a smooth transition back to family- and community-based care (Hamilton & Vessey, 1992). Advance awareness of the planned discharge date by nursing staff and the child's family members promotes timely discharge (Sumer et al., 1997), adequate parental preparation and planning for family needs and schedules on the day of discharge (Snowdon & Kane, 1995), and a well-coordinated plan for multidisciplinary follow-up and support after discharge (AAP & ACOG, 2002). Parents who participate in planned, negotiated discharge processes experience less anxiety and feelings of being left to cope alone at home, but information and reassurance needs continue after discharge (Smith & Daughtrey, 2000). Discharge education and planning for self-management after discharge can decrease the use of postdischarge follow-up services including emergency room (ER) visits and hospital readmission (Wesseldine, McCarthy, & Silverman, 1999).

Readiness for discharge has been described as an important dimension of the parental experience of transitioning from hospital to home in several qualitative studies (Bissell & Long, 2003; Smith & Daughtrey, 2000; Suderman et al., 2000). Only a few studies have measured parents' perceptions of readiness quantitatively, in a dichotomous yes/ no format (Bernstein et al., 2002; Weiss, Ryan, Lokken, & Nelson, 2004) and using a summated rating scale (Weiss, Ryan, & Lokken, 2006). In these studies focused on postpartum mothers and their newborns, more than 90% of mothers reported discharge readiness. Lack of readiness was associated with more self-reported physical and psychosocial problems, inappropriate infant care behaviors, and greater use of health care services. Other than in the healthy postpartum and newborn population, no studies were identified in the pediatric nursing literature that measured parental readiness for discharge and its relationship to predictors and outcomes using quantitative methods.

Theoretical Framework

Hospital discharge is a time of transition for parents. In Meleis' transitions theory, a transition is viewed as a passage or movement from one state, condition, or place to another that may create a period of vulnerability associated with changes in health status, role relations, expectations, or abilities (Meleis, Sawyer, Im, Hilfinger Messias, & Schumacher, 2000; Meleis & Trangenstein, 1994). Transitions theory provided a useful framework for conceptualizing the transition from hospital to home and for identifying relevant variables for the study of the discharge transition. Variables associated with the four major components of transition (the nature of the transition, transition conditions, nursing therapeutics, and patterns of response) were selected for inclusion in the study design. Hospitalization characteristics reflected the nature of the transition experienced by parents. Parent and child characteristics represented the transition conditions. Parent discharge teaching and care coordination were the nursing therapeutics investigated in this study that were expected to influence patterns of response at discharge and in the postdischarge period. Patterns of response include feeling confident and feeling connected (Meleis et al., 2000). Parental readiness for discharge, post-discharge coping, and utilization of supportive health care services and family in the post-discharge periods were identified as indicators of these response patterns for the parental transition situation. The linkages between transitions theory concepts, study variables, and empirical measures used in the study are presented in Table 1.

Methods

This study was part of a three-study series investigating relationships between predictors and outcomes of readiness for discharge conducted concurrently using similar measures with three different patient populations experiencing hospitalization in acute care facilities (adult medical surgical patients, postpartum mothers, and parents of hospitalized children; Weiss et al., 2007; Weiss, Piacentine, Johnson, Lokken, & Jerofke, in review). The study reported here used a correlational design with variables specific to the parent sample.

The sample consisted of parents of children hospitalized at a children's medical center in the midwestern United States. Inclusion criteria were the following: (a) parent at least 18 years of age with a child 18 years or younger; (b) home as the child's discharge destination; (c) primary responsibility for care of the child following hospital discharge; (d) sufficient English language skills to read and respond to consent forms and study questions; and (e) telephone access for post-discharge data collection. Parents from across the spectrum of child diseases and diagnoses admitted to the study site were included. Parents of children who were discharged

home with hospice care were excluded. A power analysis indicated that a sample of 120 would be sufficient to achieve a power of 80% in multiple regression analyses with up to 10 predictor variables at a moderate effect size (Polit, 1996). A total of 135 parents enrolled in the study, 123 (91%) completed data collection at discharge, and 119 (88%) completed the 3-week postdischarge telephone interview.

Variables and Instruments

Parent, Child, and Hospitalization Characteristics

A study enrollment form completed prior to the day of hospital discharge was used to collect data on parent characteristics (age, race, gender, marital status, number of adults and children living in the home, and socioeconomic status), child characteristics (age), and hospitalization characteristics (previous admission for same condition, planned admission [aware of admission date for at least 24 hours prior to admission], prior admissions to the hospital, hospital length of stay [days]). Length-of-stay data were abstracted from the medical record. The Hollingshead four-factor index of social status was used to calculate a family socioeconomic status score using education and occupation data of one or both parents, depending on marital and employment status. For occupations not listed in the instrument documentation, the occupation reported by the parent was matched to the occupation category most consistent with the job function. Two coders independently scored the occupation data and reconciled discrepancies by discussion and consensus. The instrument instructions provide a method for averaging scores for married parents if both are employed; otherwise, the single parent or working married parent score was used to reflect the family social status (Hollingshead, 1975).

Parents' Readiness for Hospital Discharge

The parent form of the Readiness for Hospital Discharge Scale (RHDS) was used to capture parents' perceptions of readiness for discharge. The RHDS parent form is a 29-item instrument that includes 21 items from a master version of the RHDS that can be used across patient populations (Weiss & Piacentine, 2006) and 8 additional items specific to the parent forms. A fifth subscale, Child's Personal Status (6 items) was added to the existing four subscales: Parent's Personal Status, Knowledge (2 items added), Coping Ability, and Expected Support. The self-report summated rating scale uses an 11-point scaling format with anchor words (e.g., *not at all, totally*) located at the 0 and 10 poles of the scale to cue the respondent to the meaning of the numeric scale. The maximum score of the RHDS parent form is 290, and higher scores indicate greater readiness. The reading level of the instrument is grade level 7.7 (Microsoft Word, 2003, Flesch-Kincaid Grade Level Score). Reliability, construct validity, using confirmatory factor

analysis and contrasted group comparisons, and predictive validity have been established for the 21-item scale, and the Cronbach's alpha reliability estimate was .90 using the combined samples from the three concurrent studies (Weiss & Piacentine, 2006). The Cronbach's alpha reliability estimate for this parent sample was .85 for the total scale and .71, .70, .85, .86, and .84 for the Parent's Personal Status, Child's Personal Status, Knowledge, Coping Ability, and Expected Support subscales, respectively.

Parent Education

Parent educational preparation for discharge was conceptualized as the composite of all discharge preparation teaching provided to the parent during the hospitalization and was measured using the Quality of Discharge Teaching Scale (QDTS). Reliability and validity were established with the combined study samples, with Cronbach's alpha of .89 and principal components exploratory factor analysis identifying a two-factor structure accounting for 54% of scale variance (Weiss et al., in review). The QDTS consists of 18 items that ask parents to rate the teaching provided by their child's nurses using a similar scaling format as that of the RHDS. The Content subscale consists of 6 paired items representing the amount of content needed and received in preparation for discharge about the child's care, medical needs and treatments, who and when to call for assistance, parents' emotions, and information for family members. The 12-item Delivery subscale reflects the skill of the nurses as educators in presenting discharge teaching and includes items about listening to and answering specific questions and concerns, expressing sensitivity to personal beliefs and values, teaching in a way that the parent could understand and at times that were good for parents and family members, providing consistent information, promoting confidence in ability to care for the child and in knowing what to do in an emergency, and decreasing anxiety about going home. The total scale score is calculated using the Content Received and the Delivery subscales. For the parent sample reported in this study, the Cronbach's alpha reliability coefficient was .88 for the total scale and .78 and .88 for the amount of Content Received and Delivery subscales. Content Needed scores were calculated separately for comparison with Content Received but were not included in the total scale score.

Care Coordination

A five-item scale, referred to as the Care Coordination Scale (CCS), measuring care coordination in preparation for discharge was developed for the purposes of the larger study and used the same scaling format as the RHDS. Reliability was assessed during analysis for the study, and the Cronbach's alpha for this parent sample was .58.

Postdischarge Coping Difficulty

A 10-item Postdischarge Coping Difficulty Scale (PDCDS) was also developed for the purposes of the combined studies, and psychometric testing established its reliability and validity (Weiss et al., in review). The PDCDS uses the same scaling format as that of the RHDS, with higher scores representing greater coping difficulty. The attributes of postdischarge coping in the instrument included difficulties with stress, recovery, self-care, and self-medical management; family difficulty; help and emotional support needed; confidence in self-care and medical management abilities; and adjustment. One additional item about the child's adjustment to being at home after discharge was added for a total of 11 items for the parent version. Cronbach's alpha reliability for this parent sample was .84.

Postdischarge Utilization of Support and Health Services

Utilization of support and health services was assessed during a postdischarge interview. Occurrences of the following self-reported utilization activities were recorded in dichotomous format (yes/no): calls to friends and family for advice and/ or support, calls to providers, calls to the hospital, unscheduled office or clinic visits, urgent care/ER visits, and hospital readmission.

Procedures

Approval was obtained from university and hospital institutional review boards. Four undergraduate nursing students who served as study research assistants (RAs) were trained by the principal investigator (M.W.) in all study procedures including recruitment and enrollment, informed consent administration, chart abstraction, and interviewing techniques. Specific guidelines for patient selection and location of specific data elements for chart abstraction were provided.

Within 2 days prior to the anticipated discharge date, as identified by unit nursing staff and their clinical nurse specialists, study RAs screened and confirmed eligibility of parents from inpatient hospital records, described the study to potential participants, obtained informed consent, and abstracted the medical record for required data elements. Within 4 hours prior to discharge, the nurse assigned to the child gave the parent a discharge survey containing the RHDS, QDTS, and the CCS. The parent filled out the study forms prior to discharge, placed the completed forms in a sealed envelope, and returned the envelope to a data collection box located on each nursing unit. The RA who enrolled the parent was responsible for completing a telephone interview at 3 weeks postdischarge to obtain parent responses to the PDCDS and to collect data on postdischarge utilization of health services.

SPSS 13.0 (2004) was used for all analyses. Descriptive statistics were calculated for parent, child, and hospitalization data and for each of the study instruments. Analyses were

conducted using multiple regression for examining outcome variables measured at the interval level (RHDS and PDCDS) and logistic regression for outcome variables measured at the nominal level (utilization variables). Preliminary analyses were conducted by entering variables associated with each of the transition theory concepts (i.e., transition conditions [parent/child characteristics], nature of the transition [hospitalization characteristics], nursing therapeutics [discharge teaching and care coordination]) in separate analyses for each of the three outcome variables (readiness for discharge, coping difficulty, and utilization of services). To retain adequate power, a final regression model for each outcome was tested using all significant predictor variables from the preliminary analyses. This procedure assisted with identification of additional relationships not originally specified in the research questions.

Results

The parent sample characteristics are presented in Table 2. Most of the 135 parents participating in the study were women (*n* = 124, 91.9%), and all but 2 were the child's mother. All 11 men were the child's father. Only one parent per child, the primary caregiver during the posthospitalization period, provided data for the study. The mean age of the parents was 35 (range = 18–59 years), and the mean age of the children was 7 years (range = newborn–18 years). Most of the parents were married (71%). Parents reported an average of 1.3 additional adults living in their household and 1.2 children in addition to the hospitalized child. The mean family socioeconomic status score (Hollingshead, 1975) of 41out of a maximum possible score of 66 was consistent with the finding that 60% of parents reported greater than high school education. The race distribution for the sample (White, 71%; Black, 21%; Hispanic, 7%; Asian, 1%) was consistent with the demographics of the surrounding communities served by the study site. Most (56%) of the parents were aware of the hospitalization at least 24 hours prior to admission. More than one third of the children were experiencing a first hospitalization (37%), and a similar number of children had previously been admitted for the same condition (38%). There were 56 of the children (41.5%) who were admitted with acute or emergent new diagnosis; 63 (46.5%) had a chronic disease; 8 (6%) were neonatal intensive care unit (NICU) patients; and 8 (6%) were planned short stay (24 hours or less) for procedures requiring sedation and observation (e.g., tonsillectomy). Average length of hospital stay was

10.9 days (*Median* = 6.5 days), with a range of 1 to 98 days.

Scale Statistics

Overall, parents reported high levels of readiness for discharge, high-quality teaching, and

low levels of postdischarge coping difficulty (Table 3). On the RHDS subscales, the highest levels of readiness were reported on the Knowledge and Coping Ability subscales. The lowest readiness scores occurred on the Child's Personal Status subscale. On the QDTS, parents reported a moderate amount of Content Received. When the amount of Content Received was compared with the amount needed as reported on parallel items of the same scale, the mean amount of Content Received exceeded the amount of Content Needed. Ten percent of parents (12 of 119) reported receiving less content than they stated they needed. On the Delivery subscale of the QDTS, the highest scores occurred on items related to the skills of nurses in presenting information in a way the parent understood, checking for understanding, and promoting confidence in knowing what to do in an emergency. The lowest scoring items requested responses about the nurses' teaching in the areas of timing of the teaching for family members (mean score of 7.5 [*SD* =3.1]) and decreasing anxiety about going home (mean score of 7.0 [*SD* =3.3]).

The mean item score for the PDCDS was 1.8 (*SD* = 1.2) out of a maximum of 10, indicating relatively low levels of coping difficulty after discharge. The lowest level of difficulty encountered in the 3 weeks postdischarge was parental ability to take care of the child's medical needs (item mean = 0.3 [*SD* = 0.8]). The item “Since your child came home from the hospital, how stressful has your life been?” received the highest rating on the PDCDS scale (mean item = 4.3 [*SD* = 3.1]).

Utilization of postdischarge services reflected the ongoing needs of families after discharge (Table 4). One third reported the need to make calls to friends and family for advice and/or support. Contacts with providers were frequent in the first 3 weeks after discharge. More than one third (37.8%) called their provider with questions and concerns, 79% reported an office or clinic visit, and nearly one quarter (23.4%) had an unscheduled (nonroutine) office or clinic visit. Reasons for the unscheduled visits included concerns related to medications, crying, feeding, incisions, pain, respiratory problems, constipation and seizures, and equipment. Fifteen percent of the children were readmitted. Reasons for readmission included gastrointestinal diagnoses and complications, chronic cardiac problems, respiratory problems, pain, infection, additional surgery, and NICU readmission.

Predictors of Readiness for Discharge

To identify predictors of parental readiness for discharge, parent/child characteristics, hospitalization characteristics, and nursing therapeutic practices were entered into multiple regression equations of readiness for discharge (RHDS). The results are presented in Table 5. In

the first model tested, the eight parent/child characteristics were entered simultaneously into a regression equation as predictor variables of RHDS. The model was not statistically significant in explaining RHDS (p = .33). Among the patient/child characteristics, the number of other children in the home emerged as the only significant predictor of the eight characteristics entered. Next, the four hospitalization predictors were entered together as predictors of RHDS, and there were no significant predictors identified in this regression model.

To analyze the relationship between nursing practices and parental readiness for discharge, the QDTS total score and the CCS score were entered into a multiple regression equation as predictors of RHDS. QDTS was the only significant predictor of RHDS with a path coefficient (standardized β) of .37. When this analysis was repeated using QDTS Content Received and Delivery subscale scores, QDTS Delivery (standardized β = .45) but not Content Received was a significant predictor of RHDS.

To test a final model for predictors of RHDS, all significant predictors from the preliminary models (number of other children and QDTS Delivery scores) were entered into a multiple regression equation. The model explained 18% (R^2=.18) of the variance in parents' perception of discharge readiness for this sample and a corresponding population estimate of 16% (adjusted R^2 =.16; Mertler & Vannatta, 2002). The QDTS Delivery subscale was the only significant predictor in the final model of predictors of readiness (standardized β =.39).

Outcomes of Readiness for Discharge

To assess outcomes of readiness for discharge, a linear regression analysis was used to determine the relationship between RDHS and PDCDS. Results indicated a statistically significant path coefficient (standardized β = –.31). To assess the contribution of all variables temporally antecedent to postdischarge coping, we conducted multiple regression analyses in the manner described for identifying predictors of RHDS. Regression models were tested using parent/ child characteristics, hospitalization characteristics, and nursing therapeutics variables as predictors of PDCDS in separate analyses. Significant predictors from these preliminary models were then entered into a final regression model. The preliminary and final models are presented in Table 6. The final model that included the number of children and parental readiness for discharge (RHDS) accounted for 12% of PDCDS variance, with RHDS emerging as the only significant predictor of postdischarge coping difficulty.

To assess the predictive properties of readiness for discharge in relation to utilization, logistic regression analyses were conducted for each utilization variable in the manner described for the previous analyses. Preliminary analyses were conducted to assess the predictive

properties of variables antecedent to utilization entered in their theory-based groupings for each of the six utilization variables. Final models for each utilization variable were tested using significant predictors from the preliminary analyses. Test statistics for the final predictive models of each utilization variable are presented in Table 7. RHDS was a significant predictor of postdischarge calls to friends and family in the preliminary analysis, but it was not a significant unique predictor in the final model. RHDS was not predictive of any other utilization variable in the preliminary testing. Higher PDCDS scores were associated with greater use of five of the six postdischarge utilization variables. Two hospitalization variables, planned admission and length of stay, were significant predictors of calls and visits to providers and urgent care/emergency visits, respectively, in preliminary tests but were eliminated in the final models. In the final models, the variables that emerged as significant predictors accounted for any variance explained by the eliminated variables. No parent/child characteristics and neither of the nursing practice variables (QDTS and CCS) emerged as significant predictors in the analysis of utilization variables. Subsequent exploratory analyses of QDTS subscales indicated that the QDTS Content Needed subscale was significantly predictive of calls to providers (odds ratio [OR] = 0.95, p =.00) such that the less content needed in discharge preparation as reported by the parent, the more calls to providers in the first 3 weeks after discharge.

The final model of the significant relationships between study variables is presented in Figure 1.

Discussion

The parents in the sample represented the diversity of children in the geographic area where the study was conducted. The average length of stay for the study sample of 10.9 days (9.7 days with NICU babies excluded), with a median of 6.5 days, was higher than the national average of 4.5 days for children 15 years of age under excluding newborn care (Popovic & Hall, 2001). The study site was a tertiary-level children's medical center and the only children's hospital within the state. It serves as a referral center for children needing complex and specialized services. The sample of parents included in the study was selected to include the spectrum of age and disease conditions of children receiving acute care services in this facility. The purpose of the study was to investigate predictors and outcomes of readiness for discharge within the acute children's medical center environment, not for specific diseases, diagnoses, or procedures.

The “delivery” of discharge teaching by the nurses was the only significant predictor of parental readiness for hospital discharge in the final predictive model of RHDS. The amount of variance in RHDS associated with the delivery of discharge teaching was statistically significant

but modest (18%). Delivery of discharge teaching only partially explained parental readiness for hospital discharge. No other parent or hospitalization factors contributed to the final predictive models. Other parent, child, and hospitalization factors and disease-specific parent/patient needs not measured in this study may contribute more substantially to readiness for discharge and post-discharge outcomes than the delivery of discharge teaching. The importance of the delivery aspect of discharge teaching lies in its potential for modification and improvement. Improvement in the quality of delivery of discharge teaching would be expected to result in improvement in parental readiness for discharge.

Although the way the discharge preparatory information was presented (delivered) by the nurses was associated with the parent's level of readiness, the amount of content provided to the parent was not a predictor. Ninety percent of parents received more content than they felt they needed. In the study hospital, as in many acute care facilities, discharge teaching protocols establish expectations for amount and type of discharge education. The delivery of teaching was dependent on the skill of the nurses in presenting the discharge teaching content. The rating of discharge teaching represented the collective efforts of all nurses caring for the child and parent. The way the nurses delivered the teaching, as perceived by the parent recipient, reflected how the nurses used their teaching skills to individualize to the parent's learning needs and style. The higher the parent's rating of the nurses' skill in delivering teaching, the more ready parents felt to take their child home. Skill in teaching delivery in this study involved listening, sensitivity, understandability, timing, consistency, promoting confidence, and reducing anxiety. These skills are often applied at a time when parents are dealing with the stresses of the child's hospitalization and may not be in an optimal state to learn (Snowdon & Kane, 1995). Nurses often incorporate teaching into other patient care activities. In doing so, content may not be remembered or even recognized as given unless the delivery of the teaching is provided in a manner that connects with the individual parent as they deal with their immediate needs and concerns. Bailey and Caldwell (1997) have suggested that rather than attempting to provide more information to parents, the nurse should focus on analyzing the effectiveness of the communication of the information.

The lowest scores on the QDTS occurred on items related to decreasing anxiety about going home and timing of teaching for family members. Parents are often anxious about their abilities to manage the child's care at home, yet the realities of the postdischarge period are often not anticipated by parents or included in general information and skill-based preparation and documentation of discharge preparation (Snowdon & Kane, 1995). Parents who reported needing less discharge preparation content were more likely to call their providers with questions and

concerns. This finding suggests that parents may need assistance in envisioning the information they will need for coping with their own and their child's needs during the postdischarge period. Reframing parent education to focus on building confidence, coping skills, realistic expectations for self and the child, and strategies for connecting with community resources and supports will promote readiness for discharge and a positive transition following discharge (Worthington, 1995). Explicit teaching and experiential learning build confidence in the parent's ability to draw on the information needed to care for the child once they are at home. Testing the realities of providing total care for the child prior to discharge can reassure parents of their readiness for discharge (Costello & Chapman, 1998; Wong, 1991). Engaging family support prior to discharge is important to a successful postdischarge transition for the parent. The frequency of postdischarge calls by parents to family and friends for advice and/or support is evidence of the important role families play in meeting the needs of parents in the posthospitalization period. Family members want to be part of the discharge process (Anthony & Hudson-Barr, 2004). Planning for inclusion of supporting family members in teaching sessions requires prescheduling with the family to assure their presence.

The outcomes of readiness for discharge include coping and utilization of postdischarge health care services. Readiness for discharge was predictive of postdischarge coping difficulty, explaining 12% of its variance. Being ready contributes to post-discharge coping, but other factors not measured in this study also certainly impact parental coping, including uncertainty and stress related to the diagnosis (Mishel, 1983) and dealing with stresses associated with the unexpected realities of life at home with a recovering child and other responsibilities (Suderman et al., 2000; Worthington, 1995). On the PDCDS, the highest difficulty ratings related to stress of life at home and the lowest rating related to the demands of the child's medical care. Information-based education and training in specific care skills address the demands of medical care needs. However, managing changes in the child's behavior and emotions resulting from hospitalization, invasive treatments, or activity restrictions may challenge parents and require new coping strategies.

Parental readiness was not directly predictive of any utilization variables in the first 3 weeks postdischarge. For this parent sample, the trajectory of influence suggests a cascading effect of parent education on readiness for discharge and post-discharge coping as intermediate outcomes that ultimately impact postdischarge utilization of health services. This trajectory is consistent with Wesseldine et al.'s (1999) findings that discharge teaching and preparation in self-management skills for coping with care needs can reduce the use of postdischarge services

including emergency visits and hospital readmission. The trajectory is also consistent with Meleis' transition theory, where nursing therapeutics impact patterns of response in terms of feeling confident and competent (ready for discharge and coping difficulty) and feeling connected (utilization).

Strengths and Limitations

The strengths of this study include the theory-driven selection of study variables, the longitudinal design to assess short-term and longer term patterns of response to the discharge transition and a diverse parent sample of sufficient size for the regression analyses. Using the parent's perception as a measure of the quality of discharge teaching was both a strength and limitation. Measuring the parent's view as the receiver of teaching provided a perspective of parent education that may be different from the actual content and delivery of teaching provided by the nurses. The amount of teaching received by the parent was measured, not the degree of learning. Disease-specific content and skills in management of medical care needs were not directly observed or assessed.

Using instruments specifically developed for the study was also a strength and limitation. The instruments were designed to capture the experience of discharge transition and testing of psychometric properties for the RHDS, QDTS, and PDCDS produced acceptable results. The CCS did not have acceptable psychometric properties. Any results related to this scale should be interpreted cautiously, and future studies should use a reliable measure of care coordination to further evaluate the role of care coordination in promoting a positive discharge transition for parents of hospitalized children.

The study model explained a small portion of the variance in parental readiness for discharge and postdischarge coping. Additional variables should be tested with the significant variables identified in this study to increase the explanatory power. No transition condition (parent/child characteristics) or nature of the transition variables (hospitalization characteristics) emerged as predictors in the final tests for readiness, coping difficulty, or utilization outcomes. A possible explanation for this finding is that hospital discharge is a transition that has elements, needs, and challenges that are common to parents regardless of their own or their child's individual situation. An alternative explanation is that the study design that included parents of children across the spectrum of acute care hospitalizations may have masked transition differences and issues arising from specific disease, diagnoses, or procedure situations. Consideration of these situations in future investigations of the discharge transition may illuminate transition conditions or experiences that are modifiable through discharge teaching or other

nursing therapeutics and improve the predictive relationships between transition variables. Other measures of coping should be evaluated for their relevance to assessment of postdischarge coping difficulty. Measurement of coping at 3 weeks may not capture the initial struggles of the postdischarge transition. Continued research is needed to uncover both the commonalities and individualities of parents' hospital discharge experiences.

Conclusions and Implications

The skills of pediatric nurses in “delivering” discharge teaching to parents of hospitalized children is important to promoting feelings of readiness for discharge and the transition to care of the child at home. Readiness for discharge is an intermediate outcome of hospital-based care that sets the stage for coping with the many stressors faced by families in the recovery period at home. How well parents are able to cope with the postdischarge transition determines their need to access friends and family for advice and support and the health care system. The results of this study clearly describe hospital discharge as a transitional process for parents that can be positively influenced by the skills of nurses in providing discharge teaching. Further development and testing of the three measurement scales for the discharge transition (QDTS, RHDS, and PDCDS) should focus on utility in clinical practice for assessment, outcome measurement, and screening for identification of parents at risk for adverse postdischarge outcomes.

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Notes

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Appendix
Table 1
Linkages Between Meleis' Transitions Theory Concepts, Study Variables, and Study Measures

Transitions Theory Concept	Nature of the Transition	Transition Conditions	Nursing Therapeutics	Patterns of Response a. Feeling Confident and Competent b. Feeling Connected
Tranisitions theory definitions (Meleis & Trangenstein, 1994; Schumacker & Meleis, 1994; Meleis et al., 2000)	Descriptors of the type, pattern, and properties of a transition	Personal or environmental conditions that facilitate or hinder progress toward achieving a healthy transition	Focuses on the prevention of unhealthy transitions, promoting perceived well-being, and dealing with the experience of transitions. A key nursing strategy is preparation for transition through education targeting assumption of new role responsibilities and implementation of new skills.	Development of understanding of diagnosis, treatment, recovery, and living with limitations, and strategies for managing The need to feel and stay connected with, as examples, supportive persons and health care professionals
Study variables	Hospitalization characteristics	Parent/child characteristics	Discharge teaching	Readiness for hospital discharge
			Care coordination	Postdischarge coping difficulty Utilization of postdischarge support and services
Study measures	a. First (no prior) hospitalization b. Previous admission for same condition c. Aware of admission greater than 24 hours d. Length of hospital stay	a. Age of child b. Age of parent c. Gender of parent d. Marital status e. Number of adults living in home f. Number of children living in home g. Parent's socioeconomic status (Hollingshead fouractor index of social status)	QDTS	RHDS parent form
			Care Coordination Scale	Post-Discharge Coping Difficulty Scale Postdischarge utilization of a. Calls to friends and family for advice and/or support b. Calls to provider c. Calls to hospital d. Unscheduled office visits e. Urgent care/ER visits f. Readmission

Table 2
Sample Characteristics

Parent, Child and Hospitalization Characteristics	Parents (*N* = 135)*	
	M	***SD***
Age	35.2	8.8
Age of child	7.0	5.9
Socioeconomic status*	41.1	12.3
Length of hospital stay (days)	10.9	14.1
	No.	**%**
Race		
White	95	71.4
Black	28	21.1
Latin	9	6.8
Asian	1	0.8
Gender		
Female	124	91.9
Male	11	8.1
Marital status		
Married	96	71.6
Single	25	18.7
Other	13	9.6
Payor		
Public	19	29.7
Private	42	65.6
Self	3	4.7
Education		
Less than high school	9	6.7
High school	46	34.1
Partial college	36	26.7
4 years of college	40	29.6
Graduate education	4	3.0
Planned admission >24 hours	76	56.3
First admission to hospital	50	37.0
Admitted previously for same diagnosis	50	38.2

Note: Hollingshead four-factor index of social status (1975). Scores range from 0 to 66.
*Ns for some analyses less than 135 due to missing data.

Table 3
Summary of Scale Characteristics

Scale	Number of Items*	Scale Mean (*SD*)	Item Mean (*SD*)	Range (Min-Max)	Cronbach's Alpha
RHDS					
Total scale	29	241.8 (26.4)	8.3 (1.1)	167-288	.85
Personal Status Subscale					
(a) Parent	7	57.8 (9.1)	8.3 (1.3)	27-70	.71
(b) Child	6	43.2 (9.9)	7.2 (0.8)	13-60	.70
Knowledge subscale	9	81.3 (9.1)	9.0 (0.6)	22-90	.85
Coping Ability subscale	3	27.0 (4.0)	9.0 (0.5)	0-30	.86
Expected Support subscale	4	32.6 (8.1)	8.1 (0.7)	7-40	.84
Quality of Teaching Scale					
Total scale	18	139.4 (26.3)	7.7 (1.7)	52-180	.88
(Delivery + Content Received subscales)					
Delivery subscale	12	103.0 (14.1)	8.6 (0.7)	50-120	.88
Content Received subscale	6	36.1 (14.0)	6.0 (2.0)	2-60	.78
Content Needed subscale	6	24.0 (14.1)	4.0 (1.4)	0-56	.81
CCS	5	34.9 (9.3)	6.9 (1.3)	10-50	.58
PDCDS	11	20.3 (15.6)	1.8 (1.2)	0-77	.84

*All items scored on a 0–10 scale.

Table 4
Utilization of Postdischarge Support and Services

Postdischarge Support and Services	Parents (*n* = 119)	
	No.	%
Calls to friends and family	40	33.6
Calls to providers	39	37.8
Office or clinic visit-total	94	79.0
Unscheduled	22	23.4
Calls to hospital	38	31.9
Urgent care/ER visits	19	16.0
Readmission	18	15.1

Table 5
Predictors of Readiness for Discharge

Variables	Model Statistics	Variable Statistics				
		B	***SE B***	**Standardized *β***	***t***	***p***
Model 1: participant characteristic predictors						
a. Gender-parent (0 = *female*, 1 = *male*)	$F(9, 70) = 1.17$, $p = .33$, $R^2 = .13$, adjusted $R^2 = .02$	8.07	16.21	.06	0.50	.62
b. Race of parent						
White (0 = *non-White*, 1 = *White*)		-3.91	11.97	-.07	-0.33	.75
Black (0 = *non-Black*, 1 = *Black*)		-8.69	12.85	-.14	-0.68	.50
c. Age, parent		-0.23	0.50	-.08	-0.47	.64
d. Age, child		-0.70	0.68	-.16	-1.03	.31
e. Number of other adults in the home		3.59	3.13	.14	1.15	.26
f. Number of other children in the home		5.01	2.31	.29	2.17	.03
g. Marital status (0 = *not married*, 1 = *married*)		6.31	8.34	.10	0.76	.45
h. Socioeconomic status		-0.12	0.27	-.06	-0.45	.65
Model 2: hospitalization predictors						
a. Previous admission for the same condition (0 = *no,* 1 = *yes*)	$F(4, 101) = 0.55$, $p = .70$, $R^2 = .02$, adjusted $R^2 = -.02$	-1.64	6.31	-.03	-0.26	.80
b. Planned admission (0 = *no*, 1 = *yes*)		3.82	5.09	.08	0.75	.45
c. First hospitalization (0 = *no*, 1 = *yes*)		-5.86	6.22	-.12	-0.94	.35
d. Length of hospital stay		0.20	0.21	.10	0.95	.34
Model 3a: nursing practice predictors						
a. QDTS-total score	$F(2, 105) = 6.80$, $p = .00$, $R^2 = .12$, adjusted $R^2 = .10$	0.36	0.11	.37	3.33	.00
b. CCS		-0.17	0.32	-.06	-0.53	.60
Model 3b: nursing practice predictors						
a. QDTS-Content amount subscale	$F(3, 104) = 6.34$, $p = .00$, $R^2 = .16$, adjusted $R^2 = .13$	-0.02	0.20	-.01	-0.12	.91
b. QDTS-Delivery subscale		0.70	0.19	.45	3.75	.00
c. CCS		-0.30	0.32	-.11	-0.95	.34
Final model: all significant predictors						
a. Number of other children in the home	$F(2, 105) = 11.14$, $p = .00$, $R^2 = .18$, adjusted $R^2 = .16$	2.98	1.58	.17	1.89	.06
b. QDTS-Delivery subscale		0.61	0.14	.39	4.42	.00

Table 6
Predictors of Postdischarge Coping Difficulty

Variables	Model Statistics	Variable Statistics				
		B	***SE B***	**Standardized *β***	***t***	***p***
Model 1: readiness for discharge as predictor						
a. RHDS	$F(1, 96) = 5.4$, $p = .02$, $R^2 = .09$, adjusted $R^2 = .08$	-0.19	0.06	-.31	-3.14	.00
Model 2: demographic predictors						
a. Gender, parent	$F(9, 76) = 2.44$R, $p = .02$, $R^2 = .22$, adjusted $R^2 = .13$	-7.61	7.61	-.11	-1.00	.32
b. Race, parent						
White (0 = *non-White*, 1 = *White*)		-5.72	7.38	-.16	-0.77	.44
Black (0 = *non-Black*, 1 = *Black*)		-13.28	7.75	-.34	-1.71	.09
c. Age, parent		0.50	0.31	.26	1.62	.11
d. Age, child		-0.47	0.39	-.17	-1.21	.23
e. Number of other adults in the home		2.85	2.17	.15	1.31	.19
f. Number of other children in the home		-3.79	1.30	-.35	-2.92	.01
g. Marital status (0 = *not married*, 1 = *married*)		0.14	4.79	.00	0.03	.98
h. Socioeconomic status		0.01	0.17	0.1	0.06	.96
Model 3: hospitalization predictors						
a. Previous admission for the same condition (0 = *no,* 1 = *yes*)	$F(4, 94) = 1.33$, $p = .27$, $R^2 = .05$, adjusted $R^2 = -.01$	-4.26	4.00	-.14	-1.06	.29
b. Planned admission (0 = *no*, 1 = *yes*)		-3.66	3.27	-.12	-1.12	.27
c. First hospitalization (0 = *no*, 1 = *yes*)		-3.01	4.00	-.09	-0.75	.45
d. Length of hospital stay		0.24	0.16	.16	0.53	.13
Model 4a: nursing practice predictors						
a. QDTS-total scale	$F(2, 97) = 1.43$, $p = .24$, $R^2 = .03$, adjusted $R^2 = .01$	0.04	0.07	.07	0.59	.56
b. CCS		-0.34	0.20	-.20	-1.64	.10
Model 4b: nursing practice predictors						
a. QDTS-Content Received subscale	$F(3, 96) = 1.02$, $p = .39$, $R^2 = .03$, adjusted $R^2 = .00$	0.10	0.14	.09	0.69	.49
b. QDTS-Delivery subscale		-0.01	0.13	-.01	-0.06	.96
c. CCS		-0.32	0.21	-.19	-1.53	.13
Model 5: all significant predictors						
a. Number of other children in the home	$F(2, 95) = 6.21$; $p = .00$; $R^2 = .12$, adjusted $R^2 = .10$	-1.67	1.08	-.15	-1.55	.13
b. RHDS		-0.17	0.06	-.28	-2.88	.01

Table 7
Final Models of Predictors of Postdischarge Utilization

Outcome Variables	Predictor Variables	Logistic Regression Statistics			
		X^2	OR	95% confidence interval	*p*
Calls to Friends and Family	RHDS	1.32	0.99	0.97-1.01	.25
	PDCDS	11.79	1.06	1.03-1.10	.00
Calls to provider	Planned admission	2.92	0.47	0.19-1.12	.09
	QDTS-Content Needed	8.62	0.95	0.92-0.98	.00
Office visits (unscheduled)	Planned admission	2.07	0.47	0.17-1.31	.15
	PDCDS	6.40	1.05	1.01-1.08	.01
Calls to hospital	PDCDS	7.64	1.04	1.01-1.07	.01
Urgent care/Emergency visit	Length of hospital stay	2.19	1.03	0.99-1.06	.14
	PDCDS	10.31	1.06	1.02-1.09	.00
Readmission	PDCDS	5.27	1.04	1.00-1.07	.02
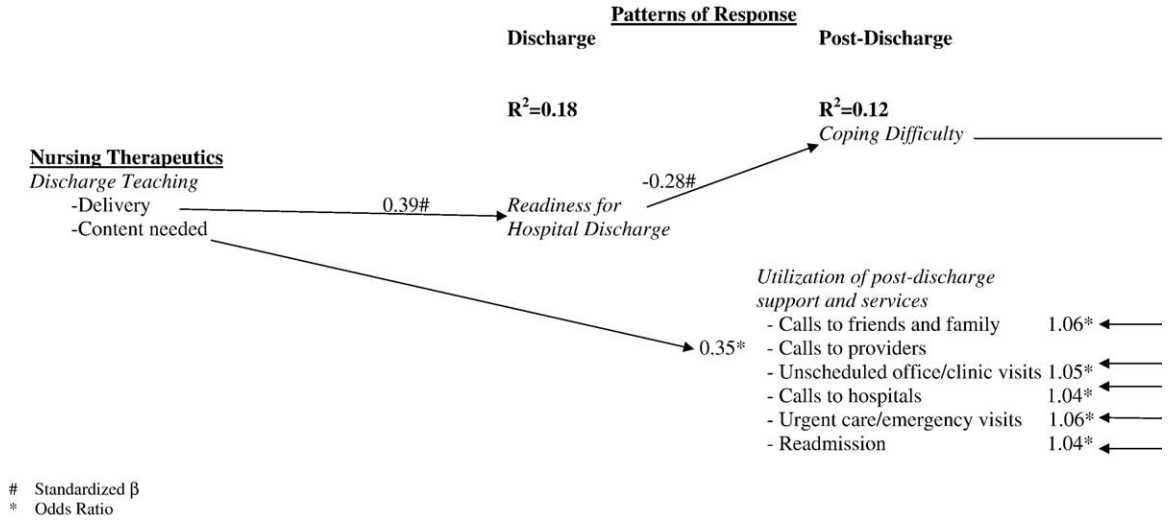
Figure 1
Final model of relationships between study variables