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This is a non-final version of an article published in final form in *Clinical Nurse Specialist*, Volume 21, No. 1 (January 2007) 31-42.
For more information about accessing the definitive published version of this article, consult the journal website at: http://journals.lww.com/cns-journal/Abstract/2007/01000/Perceived_Readiness_for_Hospital_Discharge_in.8.aspx

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Perceived Readiness for Hospital Discharge in Adult Medical-Surgical Patients

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Abstract: ***Purpose****: The purpose of the study was to identify predictors and outcomes of adult medical-surgical patients' perceptions of their readiness for hospital discharge.* ***Design****: A correlational, prospective, longitudinal design with path analyses was used to explore relationships among transition theory-related variables.* ***Setting****: Midwestern tertiary medical center.* ***Sample****: 147 adult medical-surgical patients.* ***Methods****: Predictor variables included patient characteristics, hospitalization factors, and nursing practices that were measured prior to hospital discharge using a study enrollment form, the Quality of Discharge Teaching Scale, and the Care Coordination Scale. Discharge readiness was measured using the Readiness for Hospital Discharge Scale administered within 4 hours prior to discharge. Outcomes were measured 3 weeks postdischarge with the Post-Discharge Coping Difficulty Scale and self-reported utilization of health services.* ***Findings****: Living alone, discharge teaching (amount of content received and nurses' skill in teaching delivery), and care coordination explained 51% of readiness for discharge score variance. Patient age and discharge readiness explained 16% of variance in postdischarge coping difficulty. Greater readiness for discharge was predictive of fewer readmissions.* ***Conclusions****: Quality of the delivery of discharge teaching was the strongest predictor of discharge readiness. Study results provided support for Meleis' transitions theory as a useful model for conceptualizing and investigating the discharge transition.* ***Implications for Practice****: The study results have implications for the CNS role in patient and staff education, system building for the postdischarge transition, and measurement of clinical care outcomes.*

With the contemporary focus on minimizing length of hospital stay, patients are discharged in an intermediate rather than complete stage of recovery.[1] Care needs extend beyond discharge into the home where the burden of managing the complexities of recovery falls on the patient and family members.[2-6] Readiness for discharge is typically a medical team decision based on achievement of clinical criteria. The patient's perception of readiness for discharge may be different than their care provider's evaluation.[7,8] In studies of hospital

discharge and the transition to care at home, the patient's perception of readiness for discharge has rarely been included as a study variable. Assessment of readiness for discharge and the transition to home-based recovery and care has become increasingly important for patient safety, satisfaction, and outcomes. Identification of predictors of readiness or lack of readiness is essential for determining appropriate timing of discharge and subsequent postdischarge follow-up needs.

The purpose of this study was to identify patient characteristics, hospitalization factors, and hospital nursing practices that are predictive of adult medical-surgical patients' perceptions of their readiness to go home at the time of discharge and the relationship of perceptions of discharge readiness to posthospitalization coping and utilization outcomes. The study is of particular significance to Advanced Practice/Clinical Nurse Specialists, whose role responsibilities encompass outcome achievement for selected patient populations through patient and staff education, system building for continuity of care, optimization of outcomes during transitions between venues of care, and measurement and evaluation of clinical care processes and outcomes.[9]

Theoretical Framework

Going home following hospitalization has commonly been referred to as a transition for the patient and the family that begins prior to discharge and extends into the postdischarge period.[2,3,10-14] Meleis' middle-range theory of transitions[15] was selected as a guiding framework for conceptualizing the discharge transition and identifying relevant study variables because of the congruence between the concepts of this middle-range theory and the concepts of the specific transition situation of going home after hospitalization. Testing of transitions theory concepts and relationships in the specific situation of hospital discharge will not only develop knowledge to advance clinical practice but will also extend nursing knowledge about the phenomenon of transitions.[15,16] A transition is a process of passage from one life phase, condition, or status to another during which changes in health status, role relations, expectations, or abilities create a period of vulnerability.[15,17] Hospital discharge was viewed as a transitional process occurring in 3 sequential phases: (1) the hospitalization phase during which discharge preparation occurs; (2) the discharge when short-term outcomes of the preparatory process can be measured; and (3) the postdischarge period when patients' perceptions of their ability to cope with the demands of care at home and their needs for support and assistance from family and health services provide evidence of positive or adverse outcomes of the patient's transitional

process. Four major dimensions of transitions theory were explored in this study: the nature of the transition (hospitalization factors including planned or prior admissions and length of hospital stay), transition conditions (patient characteristics including age, gender, race, socioeconomic status, payor, and living alone), nursing therapeutics (discharge teaching and care coordination), and patterns of response (readiness for hospital discharge, postdischarge coping difficulty, and postdischarge utilization of health services). Transitions theory proposes that the nature of the transition, transition conditions, and nursing therapeutic practices will affect patterns of response during a transition. Transitions theory concept definitions and specification of the related study variables and empirical indicators are presented in Table 1.

Background

Readiness for hospital discharge is a concept that is familiar to patients, families, and providers of hospital-based care. It has been described as an estimate of patients' and family members' ability to leave an acute care facility,[18] a perception of being prepared or not prepared for hospital discharge,[7,19] and as an indicator of sufficient recovery to allow safe discharge although the patient is in an intermediate rather than later stage of recovery.[1] Attributes of readiness for discharge include physical stability; functional ability, preparedness, and competence to manage self-care at home; psychosocial factors including coping skills; availability of social support; adequate education and information about what to expect; and access to healthcare system and community resources.[19-22]

A patient's readiness for discharge can be assessed from the perspectives of the care provider, patient, and family who may have different perceptions of the patient's readiness.[7,8] Most commonly, readiness for discharge is measured in the form of a criterion-based assessment using situation-specific criteria to guide clinical discharge decisions.[23] The need to include patient's perceptions of readiness for discharge has been identified as an important component of discharge assessment,[19,20] however, few studies have directly assessed readiness for discharge from the patient perspective. The method of assessment is often limited to a single-item question in yes/no response format on which more than 90% of patients report readiness for discharge.[20,24-26] Recently, Weiss et al[22,27] have developed and tested a summated rating scale for measurement of patients' perceptions of readiness for discharge. Results indicated a general perception of readiness but not complete readiness at the time of discharge.

Despite the clinical relevance of the patient's perception of readiness for discharge, only a few studies have been conducted to determine the consequences of discharging a patient who

is not ready from either the clinician's or the patient's own perspective. For example, failure to meet postsurgical discharge criteria has been associated with a higher incidence of symptoms at 24 hours postdischarge.[28] Adult patients who reported unmet needs for care after discharge had higher rates of posthospitalization complications and readmission than those who reported that their postdischarge needs were met.[29] Results of descriptive studies provide evidence of problems and concerns after hospital discharge that reflect lack of readiness for the transition from hospital to home, such as difficulties with activities of daily living, medication and pain management, health maintenance, emotional adjustment, family caregivers, and access to health and social services.[5,6,20,31]

Patient education in the form of discharge teaching and coordination of care through discharge planning activities are the primary hospital nursing strategies for preparing patients for discharge. Practice and research reports on these topics have focused on the needs and concerns for specific patient populations, essential content for the health condition, and evaluation of knowledge gained, satisfaction with programs and services, and postdischarge outcomes. Nurses and patients may have different priorities for discharge teaching,[32] but in general it includes activities of daily living, pain and wound management, treatments and medication, recognizing complications, and accessing follow-up services.[33] Extensive discharge teaching has become a standard of hospital care. However, anxieties related to the complexity of managing medical care needs at home, the amount and consistency of information, the timing of teaching, and the relevance of the content to personal needs and concerns are barriers to retention of discharge teaching.[34] Consequently, although most patients report receiving adequate information prior to discharge, they identify gaps in needed information when questioned after discharge.[33,35,-37] In particular, patients report lack of anticipatory education to promote the knowledge, coping skills, confidence, and support needed for managing the stressful, complex, and changing realities of the post-hospitalization experience.[6,38] When informational needs are not adequately addressed, patients experience difficulties in managing posthospitalization care[4] and increased postdischarge utilization of provider office visits.[35]

Care coordination activities have been successful in promoting positive perceptions of discharge readiness and ability to manage care at home.[39] Active patient communication, family participation, and interdisciplinary collaboration during discharge planning promotes congruent identification of learning needs and priorities by the patient, family, and clinician, leading to successful home transition and satisfaction with discharge planning services.[40,41]

Readiness for discharge is a transitional outcome in the continuum of care from hospital

to home. Because the patient's perspective has only occasionally been included in studies of discharge readiness, little is known about adult medical-surgical patient characteristics, hospitalization factors, and nursing practices that promote feelings of readiness for discharge or the relationship of readiness for discharge to the patient's experience of coping with home management in the posthospitalization period.

Methods

The following research questions guided the selection of the correlational, longitudinal study design:

1. What patient characteristics, hospitalization factors, and hospital nursing practices are predictive of patients' perceptions of readiness for hospital discharge?
2. Do patients' perceptions of readiness for hospital discharge predict postdischarge coping difficulty and utilization of family support and health services?

The proposed relationships between the study concepts are presented in Figure 1.

This study was part of a larger study of predictors and outcomes of readiness for discharge among a broad sample of patients (adult medical surgical patients, postpartum mothers, and parents of hospitalized children) discharged from acute care facilities.[42] The study reported here includes variables and results specific to the discharge transition of the adult medical-surgical portion of the larger study sample.

The sample consisted of adult medical-surgical patients at an urban tertiary-level medical center in the midwestern United States. Patients were recruited from general medical, surgical, and cardiac inpatient units. Patients met study inclusion criteria if they were at least 18 years old, were discharged directly home following hospitalization, had sufficient English language skills to read and respond to consent forms and study questions, and had telephone access for postdischarge data collection. Patients were excluded if they did not have sufficient cognitive skills to complete the consenting, questionnaire, and interview processes independently or they were discharged home with hospice care. 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.[43] A total of 147 patients enrolled in the study, 135 (92%) completed data collection at discharge, and 113 (77%) completed the 3-week post-discharge telephone interview. Loss to follow-up at the 3-week postdischarge period was due to inability to

reach the patient using primary and alternate telephone contact information. There were more nonwhite (χ^2 = 3.98, *df* = 1, *P* = .046) and public assistance patients (χ^2 = 5.60, *df* = 1, *P* = .02) in the lost-to-follow-up group than among those who completed the follow-up interview. Two patients died during the 3-week interval after discharge.

Variables and Instruments

Patient Characteristics and Hospitalization Factors

During the inpatient hospitalization prior to the day of discharge, data on patient characteristics (age, gender, race, socioeconomic status, living alone) and hospitalization factors (planned admission [aware of admission date for at least 24 hours prior to admission], number of admissions to the hospital, previous admission for same condition) were collected from the patient during study enrollment. The Hollingshead 4-Factor Index of Social Status was used to calculate a family socioeconomic status score using education and occupation data from one or both parents depending on marital status.[44] Payor (a patient characteristic) and length of hospital stay (a hospitalization factor) data were abstracted from the medical record.

Four scales were developed and tested for the larger study:[22,42] The Readiness for Hospital Discharge Scale (RHDS) was a modification and extension of earlier work by Weiss and colleagues with postpartum patients.[27] The modified version of the RHDS and the Quality of Discharge Teaching Scale (QDTS), Care Coordination Scale (CCS), and Post-Discharge Coping Difficulty Scale (PDCDS) were developed for the specific purposes of measuring variables related to the discharge transition by 3 teams of nurse experts.

Readiness for Hospital Discharge

The adult patient version of the RHDS was used to capture patients' perceptions of readiness for discharge. The RHDS—Adult Form is a 22-item instrument that includes 21 items from a master version of the RHDS that can be used across patient populations[22] and 1 additional item specific to adult medical-surgical patients (knowledge about caring for personal needs). The items form 4 subscales: Personal Status, Knowledge, Coping Ability, and Expected Support. The RHDS is a self-reported summated rating scale with items scored on an 11-point scale (0-10) with anchor words (eg, not at all, totally) to cue the subject to the meaning of the numeric scale. Higher scores indicate greater readiness. The reading level of the instrument is grade level of 8.5 (Microsoft Word, 2003, Flesch-Kincaid Grade Level Score). Construct validity, using confirmatory factor analysis and contrasted group comparisons, and predictive validity have been established for the 21-item scale.[22] The Cronbach's alpha reliability estimate for the 22-item RHDS—Adult Form was .93.

Discharge Teaching

Educational preparation for discharge was measured using the QDTS. Discharge teaching was conceptualized as the composite of all teaching received by the patient (from the patient's perspective) during the hospitalization in preparation for discharge home and coping with the posthospitalization period. Principal components exploratory factor analysis of the QDTS data for the larger study sample identified a 2-factor structure (content and delivery) accounting for 54.2% of scale variance.[42] The QDTS consists of 18 items and uses a similar scaling format to the RHDS. The content subscale consists of 6 items representing the amount of ''content received'' during teaching in preparation for discharge. 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 patient could understand and at times that were good for patients and family members, providing consistent information, promoting confidence in ability to care for themselves and knowing what to do in an emergency, and decreasing anxiety about going home. The total scale score is calculated by adding the content received and the delivery subscale scores. For the adult sample, the Cronbach's alpha reliability coefficients for the total scale was .92 and for the content received and delivery subscales were .85 and .93, respectively.

Care Coordination

The CCS, with 5 items measuring care coordination during discharge preparations, used the same scaling format as the RHDS. With a small number of items, this scale did not perform adequately in reliability testing in the larger study and with the adult patient sample. Any results from its use should be viewed cautiously.

Postdischarge Coping Difficulty

The 10-item PDCDS used the same scaling format as the RHDS. Higher scores represented greater coping difficulty. Attributes of postdischarge coping that were included in PDCDS items were difficulties with stress, recovery, self-care, self-medical management, family difficulty, help and emotional support needed, confidence in self-care and medical management abilities, and adjustment. Exploratory factor analysis with the larger study sample indicated a single dominant factor accounting for 39% of scale variance. Reliability for the adult sample was 0.87.

Postdischarge Utilization of Support and Health Services

Utilization of support and health services was self-reported during a postdischarge

telephone interview. The following occurrences were recorded in dichotomous format (yes/no): calls to friends and family for advice and/or support, calls to providers, office or clinic visits, calls to the hospital, urgent care/emergency room visits, and hospital readmission.

Procedures

Approval was obtained from university and hospital institutional review boards. The principal investigator trained the undergraduate nursing students who served as study research assistants in the study procedures for obtaining informed consent, data collection, and telephone interviewing. Before the day of discharge, the research assistants identified eligible patients from inpatient hospital records, described the study to potential participants, obtained informed consent, and abstracted medical records. Within 4 hours prior to discharge, patients completed the RHDS, the QDTS, and the CCS. The research assistant who enrolled the patient conducted a telephone interview at 3 weeks postdischarge to collect PDCDS and postdischarge utilization data.

SPSS 13.0[45] was used for the analyses. Incomplete responses on study questionnaires were replaced by substitution with item means if less than 20% of the responses on a scale were missing. Otherwise the respondent's scores were deleted from the affected analysis. This procedure resulted in different numbers of available respondents for each analysis. Descriptive statistics were used to describe the study sample and overall response pattern on study measures. Path analyses of relationships described in the proposed study model based on transitions theory (Figure 1) 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 using variables associated with each of the transitions theory concepts (transition conditions [represented by patient characteristics], nature of the transition [represented by hospitalization factors], and nursing therapeutics [represented by hospital nursing practices]) in separate analyses for each of the 3 outcome variables (readiness for discharge, coping difficulty, and utilization of services). A final regression model was tested for each outcome variable using only the significant predictor variables from the preliminary analyses. This procedure assisted with retention of sufficient statistical power for the analyses and identification of additional relationships not originally specified in the research questions.

Results

Characteristics of the sample are presented in Table 2. The 147 participants included 78

(53.1%) women and 69 (46.9%) men. The sample as a whole included a range of ages from 20 to 88 with a mean age of 53.4 (SD = 15.0). Half of the sample was married while 20% reported that they were living alone. The Hollingshead 4-Factor Index of Social Status score was greater than the scale's median value of 33, with 55% of the sample having post–high school education. The sample was predominantly white (63.2%) but included a substantial proportion of black patients (34.7%). Demographics for the geographic location (county/city) of the study sites[46] were 68.7%/53.7% non-Hispanic white, and 20.2%/31.4% black.

Overall, 93% of patients reported being ready to go home on a single-item yes/no format question. The sample as a whole reported that they felt reasonably ready for discharge (RHDS item mean = 8.0 [SD = 0.9], range of item means = 6.1 to 9.1), that they received good quality teaching (QDTS item mean = 7.6 [SD = 1.4], range of item means = 4.9 to 8.9), and that they had fairly low levels of difficulty coping in the postdischarge period (PDCDS item mean = 2.4 [SD = 1.0], range of item means = 0.9 to 4.0) [maximum item score on all scales = 10.0]. Postdischarge utilization of health services rates were calculated for all patients responding to the postdischarge interview and are presented in Table 3. Only 3 of the 113 respondents (2.7%) did not access any health service (call or visit to provider, emergency visit, or readmission) during the first 3 weeks following discharge.

Predictors of Readiness for Discharge

The results of multiple regression analyses of the RHDS are presented in Table 4. The first path to be analyzed was the relationship of patient characteristics and RHDS. The 6 predictor variables were entered simultaneously into the regression equation. The resultant model (Table 4, Model 1) explained 16% (R^2 = 0.16) of the variance in RHDS scores in this sample with a population estimate of 11% (Adj. R^2 = 0.11). The ''lives alone'' variable emerged as the only significant independent predictor. Next, the 4 hospitalization predictor variables were entered simultaneously into a regression equation for RHDS (Table 4, Model 2). The resultant model was not statistically significant.

The nursing practice variables of QDTS and CCS were then entered into a multiple regression analysis as predictors of RHDS. The QDTS total scale score and CCS accounted for 33% of the variance in RHDS (Table 4, Model 3a). When QDTS subscale scores were entered in place of the total scale score with CCS (Table 4, Model 3b), these variables accounted for 44% of the variance in RHDS and all were significant predictors. As a final step, all significant predictors from the hospitalization phase were entered as predictors of RHDS (Table 4, Model 4). The resultant model accounted for 51% of the variance in RHDS. ''Lives alone,'' QDTS content

received and delivery of teaching, and CCS were significant predictors of patients' perceptions of readiness for discharge. The QDTS delivery of teaching subscale score was the strongest predictor. The direction on the relationships between QTDS—teaching delivery and CCS were in the expected direction, with more effective teaching delivery and greater care coordination associated with greater readiness for discharge. The direction of the relationship between amount of discharge teaching content received and readiness for discharge was inverse. In the regression analyses in Table 4 (Models 3b and 4), it appeared that less content received was associated with greater readiness for discharge, although both the amount of ''content received'' and ''teaching delivery'' were positively associated with RHDS ($r = 0.24$, $P = .01$ and $r = 0.62$, $P < .01$, respectively) and with each other ($r = 0.57$, $P < .01$) in bivariate correlations. This finding indicates that QDTS ''content received'' is a net suppression variable.[47] This effect indicates that when the stronger predictor variable (teaching delivery) was held constant, more content offered did not improve the readiness for discharge outcome, in fact, less may have been desirable in the presence of quality delivery of discharge teaching. To explore for the possibility of unanticipated differences in the amount of ''content received'' by patient characteristics or hospitalization factors, analysis of variance tests were performed with no significant differences found for any of the variables tested. For age, socioeconomic status, and number of days in hospital, the correlations with amount of content received were not statistically significant.

Outcomes of Readiness for Discharge

Two outcomes, postdischarge coping difficulty and utilization of support and healthcare services, were evaluated. The results of path analyses of predictors of PDCDS scores and utilization of services are presented in Tables 5 and 6, respectively. First, RHDS was entered as a predictor in a linear regression equation for PDCDS as the outcome variable. The results (Table 5, Model 1) indicated that RHDS scores explained 10% of the variance in PDCDS scores. To assess the contribution of all variables temporally antecedent to postdischarge coping, multiple regression analyses were computed for sets of predictor variables in their theory-based groupings: Model 2—transition conditions (patient characteristics); Model 3—nature of the transition (hospitalization factors); Model 4—nursing therapeutics (hospital nursing practices—QDTS and CCS). A final model (Model 5) was computed with all significant predictors from the preliminary models. The final model as a whole was statistically significant in predicting PDCDS, explaining 16% of its variance. Age and RHDS emerged as significant predictors in this final analysis. Younger adults and those who did not perceive themselves to be ready experienced greater coping difficulty.

To assess the predictors of postdischarge utilization, logistic regression analyses were conducted for each of the 6 utilization variables in the same manner as previous analyses, entering temporally antecedent variables and PDCDS (which was measured concurrently) in their theory-based groupings for preliminary analyses. The test statistics for the final models of all significant predictors are presented in Table 6. Readiness for Hospital Discharge Scale was predictive of readmission to the hospital but not of any other utilization variable. As expected, higher RHDS scores were associated with fewer readmissions, although only 8 study participants were readmitted. Living alone was the only patient characteristic variable associated with a utilization variable, with a more than 3-fold (OR = 3.53) increase in the number of patients calling family and friends for advice and/or support.

Higher PDCDS scores were also associated with a slightly greater use of family and friends (OR = 1.04). Patients reporting higher levels of care coordination made fewer calls to the hospital after discharge. Those with a longer length of stay made more office or clinic visits to providers. Of particular note, patients experiencing a first admission to the hospital were 7 times (OR = 7.76) more likely to have an unscheduled office visit than patients who had a prior hospitalization. Figure 2 displays the significant relationships identified in the regression analyses.

Discussion

Most patients feel ready for discharge but there was enough variability in the study data to suggest that those who are not ready have poorer postdischarge coping outcomes. The study's results also validate the importance of discharge teaching in preparing patients to feel ready to go home. The relationship of discharge teaching to postdischarge coping was indirect with readiness for discharge as an important intermediary. The findings suggest that discharge teaching places the patient in a state of readiness that sets the stage for successfully managing care and continuing recovery at home without substantial difficulty coping with the early postdischarge period. The significant relationships identified in the analyses indicate a trajectory of hospital-based nursing practices that impact patient readiness as an outcome of hospitalization, which then is reflected in postdischarge coping and utilization outcomes. This trajectory is consistent with the transitions theory propositions that generated the research questions for the study.

Higher quality discharge teaching was associated with more positive perceptions of discharge readiness. Both the amount of discharge teaching content and the skills of nurses in

delivering the discharge teaching were associated with patients' perceptions of discharge readiness. The ''delivery'' of teaching was the strongest predictor of discharge readiness. This finding has important implications for development of nursing staff skills in discharge teaching and of programs and materials for patient education. Often, the focus of patient education is the content itself. The findings of this study suggest that the skills used in content delivery are associated with readiness as an outcome. In preparing nurses in discharge teaching, emphasis should be placed on the quality of the delivery of discharge teaching that results in the patient feeling prepared for the transition home. Specifically, delivery of teaching that included particular attention to listening and answering, sensitivity to personal beliefs and values, clarification, consistency, scheduling at times convenient for the family to attend, focusing on anxiety reduction, and confidence building improved patients' perceptions of their readiness to go home. The combination of verbal and written modalities for presenting information for discharge has been recommended.[48] This study did not evaluate how the nurses used these modalities or how these modalities were customized to the patient's needs. What was evident from this study was that the skill of nurses as they provided for the patient's discharge learning needs was an important predictor of the patient's perception of readiness to go home.

The complexity of patient teaching was evident in the results of bivariate and multivariate analyses of the relationship between the quality of discharge teaching and readiness for discharge. As expected, in the bivariate correlations of the QDTS content received and delivery subscales with RHDS, both were positively correlated. When placed in the context of the totality of the teaching encounter (ie, both the content received and the way it is ''delivered''), when both subscale scores were entered together into a model for predicting readiness for discharge as an outcome (Table 4, Model 3b and Model 4), the amount of content was negatively associated with RHDS, whereas delivery of teaching was still positively and more strongly related to RHDS. The complementary, synergistic, and complex nature of patient teaching is evident in these findings. Although providing information in preparation for discharge is, in general, beneficial, more may not always be better. In the presence of excellent teaching delivery skills, less content may be needed to produce the desired outcome. Overcompensation with excessive content may occur in the absence of high-quality teaching skills. Content in the absence of quality delivery skills is not as effective as when nurses with excellent teaching delivery skills provide the discharge preparation. Overloading the patient with all of the content the nurse perceives as beneficial may, in fact, interfere with retention. Anxiety, fatigue, and other illness responses; age-related memory; and medications can all potentially impact attention and retention of content presented

in discharge teaching. Identification of information to meet individualized needs may reduce the amount of content but increase the accessibility of the information when needed. Several reports have indicated that patients report gaps in teaching once they are home, especially in the areas of expectations and realities of the postdischarge period and strategies for handling the complexities of postdischarge self-management.[4,6,31] Less but targeted content focused on expectations, realities, and problem-solving may be more effective than facts alone. Future research efforts should be directed to uncovering ''best practices'' for assessment of the desirable amount of content and the best methods of delivering discharge teaching.

Living alone and poor care coordination were associated with lower readiness for discharge scores. The importance of family support and continuity of care during the transition from acute to community-based care is well documented.[4,38,41]

Patients' perceptions of their discharge readiness were associated with difficulties with postdischarge coping and the occurrence of readmission in the first 3 weeks post-discharge. With only 8 patients readmitted, this finding should be viewed with caution. However, failure to institute anticipatory interventions for patients who do not perceive themselves to be ready for discharge may lead to unintended adverse clinical outcomes for the patient and cost outcomes for the health system. Readiness for discharge is a nurse-sensitive intermediate patient outcome in the transition from acute to community-based care. Patients with low readiness for discharge scores are not the only patients who need support and services following discharge. Perceived readiness for discharge explained a small portion of the variance in discharge coping difficulty and the likelihood of service utilization. Many patients with high perceived readiness for discharge also experienced difficulties and potentially preventable utilization of compensatory services in the postdischarge period. The need for continuing care and services beyond hospitalization is clear from the patterns of postdischarge utilization observed in this study.

Predictive pathways, in addition to those originally proposed, emerged from the analyses of the discharge transition model. Younger adults were more likely to experience coping difficulty, possibly related to the competing demands of family life, work responsibilities, and needs related to the illness and recovery. Likewise, older adults may have already developed successful coping behaviors during past health-related episodes that facilitate coping in subsequent health experiences. Patients who lived alone or who had difficulty coping sought support and/or advice from friends and family. Nature of the transition variables, specifically a longer hospitalization and a first hospitalization, were associated with greater utilization of medical surveillance services in the postdischarge period.

Meleis' transitions theory was a useful model for conceptualizing and investigating the discharge transition. Many of the relationships identified using transitions theory as a guiding framework were supported by the study findings. Consistent with transitions theory, the findings indicate that transition conditions, the nature of the transition, transition conditions, and nursing therapeutics impact patterns of response across the posthospitalization transition.

Limitations

Patients' perceptions of their discharge transition, including their perceptions of the discharge teaching, their readiness for discharge, their postdischarge coping difficulty, and self-reports of service utilization were the data on which study findings were based. These perceptions reflected the patient's reality but may not have accurately represented the clinical reality or the actual teaching that was provided. A legitimate question arising from this research is ''Do patients accurately assess their readiness for discharge?'' This question was not addressed in this study. Further exploration of the relationships between patient, family, and provider perspectives on discharge readiness is needed to determine the relative contribution of each to anticipating postdischarge outcomes.

Data for this study were collected in a single hospital and may not reflect the experience of patients in other facilities and geographic locations. The instruments for the study were developed for the specific purposes of this study and, for all but one scale (CCS), their reliability estimates were acceptable and validity was supported. These instruments will benefit from additional testing. Care coordination was positively associated with readiness for discharge, however, this finding should be considered with skepticism until the relationship between care coordination and readiness for discharge is tested with a better measure. The number of subjects was adequate for the number of variables entered into the multiple regression equations, providing sufficient power for analyses of readiness for discharge and post-discharge coping. However, more subjects are needed to confidently explore the relationship of predictor variables to utilization outcomes.

Conclusions and Implications for Advanced Practice Nursing

The results of this study are particularly relevant to the role of the clinical nurse specialist (CNS) across their 3 spheres of influence on patients/clients, nurses and nursing practices, and organizations/systems.[9] The results clearly point to the importance of nurses' patient education skills in promoting readiness for discharge and outcomes beyond discharge. Preparation of

nursing staff to effectively deliver discharge teaching with emphasis on the appropriate amount of content and effective delivery methods is within the domain of the CNS. Readiness for discharge assessment should be part of discharge preparation for every patient and those who are less ready may benefit from rescue strategies to avert adverse outcomes. Readiness for discharge can be both a process measure to identify patients in need of additional interventions before and after discharge and a nurse-sensitive outcome measure of the hospitalization experience. Building systems of care that routinely assess progress toward readiness, outcome at the time of discharge, and implementation of strategies for addressing gaps in readiness that emerge after hospital discharge will promote optimal short-term and long-term outcomes of the hospitalization experience. This study also points to the value of using a nursing theory that incorporates the patient's experience and the role of the nurse, in this case, transitions theory, as a guiding framework for investigating and ultimately planning systems of care that address the important considerations of the discharge transition and other transitional processes.

Acknowledgements

- The authors thank Marquette University College of Nursing undergraduate students Cheri Goepfert, Lindsay Gorectke, Meghan Jolly, Patrick McNally, Elizabeth Pricco, and graduate student Kim Nelson, who served as research assistants for the study. The nursing staff of Wheaton Franciscan Healthcare, St. Joseph, Milwaukee, WI, were active participants in the research process through their support of the study, involvement in study planning, and assistance with distribution of study questionnaires to their patients at the time of hospital discharge.

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**
Transitions Theory Definitions[15,17,30]	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 healthcare professionals
Study Variables	Hospitalization factors	Patient characteristics	Hospital nursing practices • Discharge teaching • Care coordination	Readiness for hospital discharge Postdischarge coping difficulty Utilization of postdischarge support and services
Study Measures	a. Planned admission b. First (no prior) hospitalization c. Previous admission for same condition d. Length of hospital stay	a. Age b. Gender c. Race d. Socioeconomic status e. Payor f. Lives alone	Quality of Discharge Teaching Scale Care Coordination Scale	Readiness for Hospital Discharge Scale–Adult Form Post-Discharge Coping Difficulty Scale Postdischarge utilization of: a. Calls to friends and family b. Calls to provider c. Calls to hospital d. Office or clinic visits e. Urgent care/ER visits f. Readmission

Table 2
Patient Characteristics and Hospitalization Factors (n = 147*)

	Mean	SD
Age	53.4	(15.1)
Socioeconomic status◊	38.0	(13.8)
Length of hospital stay (days)	5.0	(4.0)
	n	**%**
Gender		
Female	78	(53.1)
Male	69	(46.9)
Race		
White	91	(63.2)
Black	50	(34.7)
Hispanic	1	(0.7)
Asian	2	(1.4)
Marital status		
Married	75	(51.0)
Single	34	(23.1)
Widowed	19	(12.9)
Other (divorced, separated)	19	(12.9)
Lives alone	29	(19.9)
Payor		
Public	60	(41.1)
Private	80	(54.8)
Self	6	(4.1)
Education		
Less than high school	23	(15.9)
High school	42	(29.0)
Partial college	36	(24.8)
4-year college	28	(19.3)
Graduate education	16	(11.0)
Admission		
Planned admission >24 hours	73	(50.7)
First admission to hospital	14	(9.7)
Previous admission for same diagnosis	44	(30.8)

Values are presented as mean [SD] or n (%).
*The n in some categories is smaller due to missing data from incomplete responses. % indicates percent of actual respondents.
◊Holllingshead 4-Factor Index of Social Status[44] scores range from 0 to 66.

Table 3
Utilization of Postdischarge Support and Services (n = 113)

Postdischarge Support and Services	n	%
Calls to friends and family	30	26.5
Calls to providers	34	30.1
Follow-up doctor visits		
Office/clinic visits	91	80.1
Unscheduled	12	10.6
Calls to hospital	12	10.6
Urgent care/ER visits	4	3.5
Readmission	8	7.1

Table 4
Predictors of Readiness for Discharge (RHDS)

		Variable Statistics				
Predictor Variables	**Model Statistics**	***B***	**SE *B***	**Standardized β**	**t**	**P**
Model 1: Patient Characteristics:	$F_{6,104}$ = 3.32					
a. Age	*P* = .01	0.31	0.22	0.14	1.40	.17
b. Gender (0 = male, 1 = female)	R^2 = 0.16	3.56	6.27	0.05	0.57	.57
c. Race (0 = white, 1 = nonwhite)	Adjusted R^2 = 0.11	-5.51	7.34	-0.08	-0.75	.45
d. Socioeconomic status		0.40	0.26	0.16	1.56	.12
e. Payor (0 = public, 1 = private)		-5.15	11.09	-0.05	-0.47	.64
f. Live alone (0 = no, 1 = yes)		**-30.66**	**8.16**	**-0.35**	**-3.76**	**<.01**
Model 2: Hospitalization Factors:	$F_{4,106}$ = 0.18					
a. Planned admission (0 = no, 1 = yes)	*P* = .95	3.50	6.65	0.05	0.53	.60
b. First hospitalization (0 = no, 1 = yes)	R^2 = 0.01	4.22	12.33	0.03	0.34	.73
c. Previous admission for same condition (0 = no, 1 = yes)	Adjusted R^2 = -0.03	-0.52	7.26	-0.00	-0.01	.99
d. Length of hospital stay		-0.47	0.97	-0.05	-0.49	.63
Model 3a: Hospital Nursing Practices	$F_{2,104}$ = 25.41					
a. QDTS	*P* = <.01	**0.31**	**0.10**	**0.33**	**3.22**	**<.01**
b. CCS	R^2 = 0.33 Adjusted R^2 = 0.32	**1.03**	**0.33**	**0.32**	**3.12**	**<.01**
Model 3b: Hospital Nursing Practices	$F_{3,103}$ = 27.46					
a. QDTS-Content received	*P* <.01	**-0.47**	**0.19**	**-0.23**	**-2.48**	**.02**
b. QDTS-Delivery	R^2 = 0.44	**0.83**	**0.14**	**0.58**	**5.83**	**<.01**
c. CCS	Adjusted R^2 = 0.43	**0.88**	**0.30**	**0.27**	**2.90**	**.01**
Model 4: All significant predictors	$F_{4,103}$ = 26.50					
a. Live alone (0 = no, 1 = yes)	*P < .01*	**-21.09**	**5.73**	**-0.26**	**-3.68**	**<.01**
b. QDTS-Content received	R^2 = 0.51	**-0.40**	**0.18**	**-0.19**	**-2.25**	**.03**
c. QDTS-Delivery	Adjusted R^2 = 0.49	**0.77**	**0.14**	**0.54**	**5.61**	**<.01**
d. CCS		**1.93**	**0.29**	**0.29**	**3.26**	**<.01**

QDTS indicates Quality of Discharge Teaching Scale; CCS, Care Coordination Scale.

Table 5
Predictors of Postdischarge Coping Difficulty (PDCDS)

	Variable Statistics					
Predictor Variables	**Model Statistics**	***B***	**SE *B***	**Standardized β**	**t**	**P**
Model 1: **RHDS**	$F_{1,86}$ = 9.32 *P* < .01 R^2 = 0.10 Adjusted R^2 = 0.09	**-0.19**	**0.06**	**-0.31**	**-3.05**	**<.01**
Model 2: Patient Characteristics	$F_{6,94}$ = 1.76 *P* = .12 R^2 =0.10 Adjusted R^2 = 0.04					
a. Age		**-0.29**	**0.13**	**-0.25**	**-2.24**	**.03**
b. Gender (0 = male, 1 = female)		3.76	3.59	0.11	1.05	.30
c. Race (0 = white, 1 = nonwhite)		3.94	4.13	0.11	0.95	.34
d. Socioeconomic status		-0.06	0.15	-0.04	-0.36	.72
e. Payor (0 = public, 1 = private)		7.39	7.09	0.12	1.04	.30
f. Live alone (0 = no, 1 = yes)		1.54	4.61	0.04	0.33	.74
Model 3: Hospitalization Factors	$F_{4,86}$ = 1.35 *P* = .26 R^2 = 0.06 Adjusted R^2 = 0.02					
a. Planned admission (0 = no, 1 = yes)		**7.76**	**3.82**	**0.22**	**2.03**	**.05**
b. First hospitalization (0 = no, 1 = yes)		4.33	6.58	0.07	0.66	.51
c. Previous admission for same condition (0 = no, 1 = yes)		2.42	4.28	0.06	0.57	.57
d. Length of hospital stay		0.54	0.55	0.11	0.99	.33
Model 4a: Hospital Nursing Practices	$F_{2,79}$ = 0.36 *P* = .70 R^2 = 0.01 Adjusted R^2 = -0.02					
a. QDTS		-0.02	0.07	-0.05	-0.34	.74
b. CCS		-0.11	0.25	-0.06	-0.46	0.65
Model 4b: Hospital Nursing Practices	$F_{3,78}$ = 1.93 *P* = .13 R^2 = 0.07 Adjusted R^2 = 0.03					
a. QDTS-Content received		0.31	0.17	0.28	1.89	.06
b. QDTS-Delivery		-0.25	0.12	-0.30	-2.04	.05
c. CCS		-0.14	0.25	-0.08	-0.58	.57
Model 5: All Significant Predictors	$F_{3,81}$ = 5.22 *P* < .01 R^2 = 0.16 Adjusted R^2 = 0.13					
a. RHDS		**-0.18**	**0.06**	**-0.30**	**-2.93**	**<.01**
b. Age		**-0.26**	**0.11**	**-0.24**	**-2.29**	**.02**
c. Planned admission (0 = no, 1 = yes)		4.26	3.50	0.12	1.22	.23

RHDS indicates Readiness for Hospital Discharge Scale; QDTS, Quality of Discharge Teaching Scale; CCS, Care Coordination Scale.

Table 6
Significant Predictors of Postdischarge Utilization

		Logistic Regression Statistics					
Outcome Variables	**Predictor Variables**	***B***	**SE**	χ^2	**Odds Ratio**	**95% CI**	***P***
Calls to family and friends	Live alone (0 = no, 1 = yes)	1.26	0.61	4.28	3.53	1.07-11.66	.04
	PDCDS	0.04	0.01	7.99	1.04	1.01-1.06	.01
Calls to provider							NS
Calls to hospital	CCS	-0.15	0.06	6.25	0.86	0.77-0.97	.01
Office/clinic visits	Length of hospital stay	0.45	0.22	4.09	1.57	1.01-2.44	.04
Unscheduled office/clinic visits	First hospitalization (0 = no, 1 = yes)	2.05	0.85	5.88	7.76	1.48-40.66	.02
Urgent care /emergency visits							NS
Readmission	RHDS	-0.03	0.01	6.83	0.97	0.95-0.99	.01

RHDS indicates Readiness for Hospital Discharge Scale; CCS, Care Coordination Scale; PDCDS, Post-Discharge Coping Difficulty Scale; NS, nonsignificant.

Figure 1
Proposed relationships between study variables

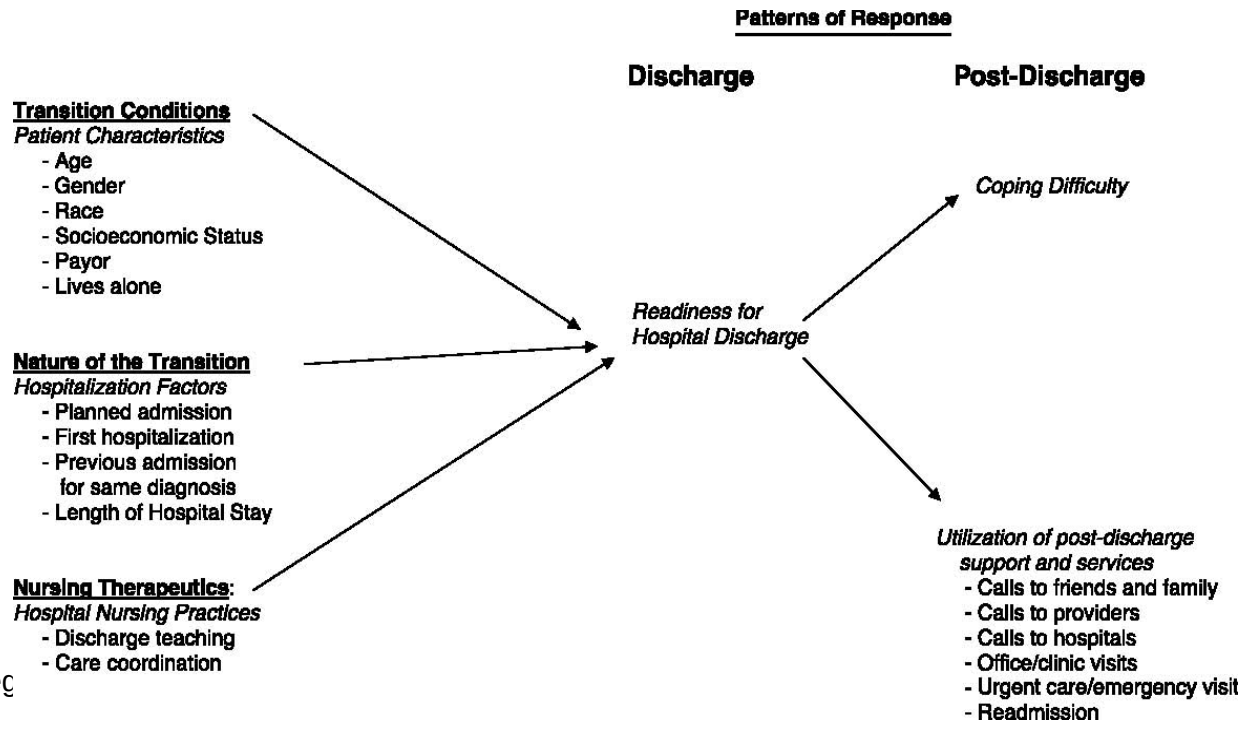
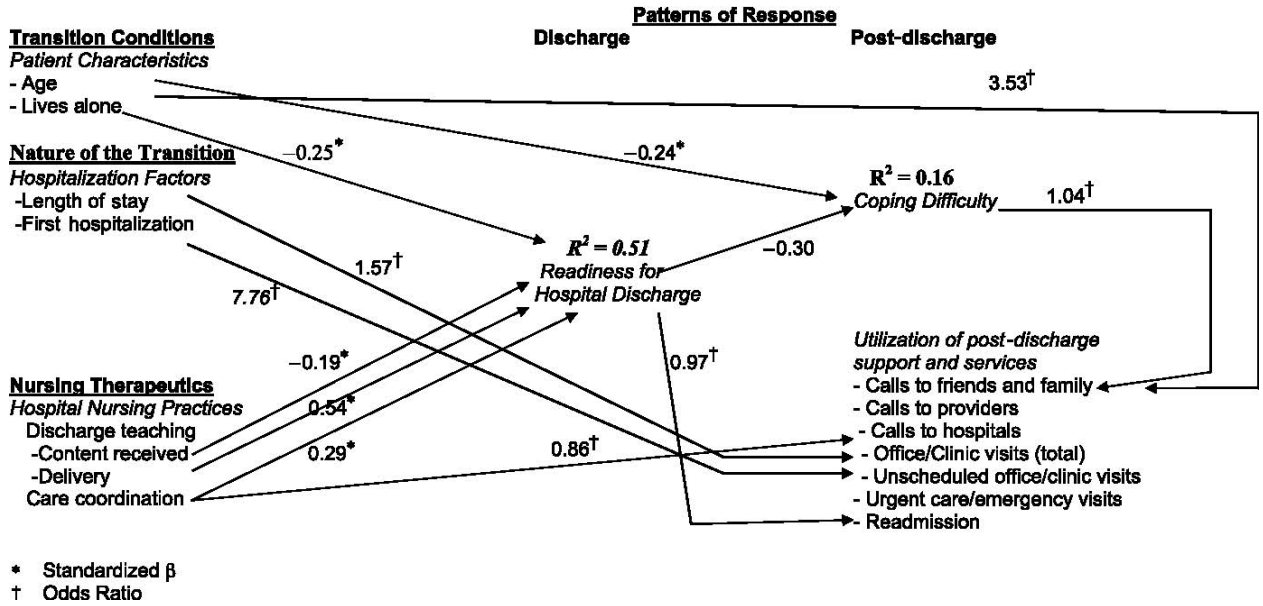
Figure 2
Final model of relationships between study variables