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A Psychometric Evaluation of the Family Decision Making Self-Efficacy Scale Among Surrogate Decision Makers of the Critically Ill

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Abstract

Objectives: The purpose of this study was to report the psychometric properties, in terms of validity and reliability, of the Unconscious Version of the Family Decision-Making Self-Efficacy Scale (FDMSE)

Methods: A convenience sample of 215 surrogate decision makers for critically ill patients undergoing mechanical ventilation were recruited from four intensive care units at a tertiary hospital. Cross-sectional data were collected from participants between Days 3 and 7 of a decisionally impaired patient’s exposure to acute mechanical ventilation. Participants completed a self-report demographic form and subjective measures of family decision-making self-efficacy, preparation for decision-making and decisional fatigue. Exploratory factor analyses, correlation coefficients, and internal consistency reliability estimates were computed to evaluate the FDMSE’s validity and reliability in surrogate decision makers of critically ill patients.

Results: The exploratory factor analyses revealed a two-factor, 11-item version of the FDMSE was the most parsimonious in this sample. Furthermore, modified 11-item FDMSE demonstrated discriminant validity with the measures of fatigue and preparation for decision-making, and demonstrated acceptable internal consistency reliability estimates.

Significance of Results: This is the first known study to provide evidence for a two-factor structure for a modified, 11-item FDMSE. These dimensions represent treatment and palliation-related domains of family decision-making self-efficacy. The modified FDMSE is a valid and reliable instrument that can be used to measure family decision-making self-efficacy among SDMs of the critically ill.

Keywords

Self-Efficacy; Decision-Making; Psychometrics; Family Members; Critical Care

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Introduction

Each year, millions of Americans will assume the role of surrogate decision maker (SDM) for an incapacitated, critically ill loved one ("Critical Care Statistics," 2019; Pisani, McNicoll, & Inouye, 2003). Guided by a shared decision-making framework, SDMs collaborate with critical care clinicians and palliative care specialists to make decisions regarding management of the patient's bothersome symptoms and, often, end-of-life care (Aslakson, Curtis, & Nelson, 2014; "Critical Care Statistics," 2019). Most SDMs are unprepared to make such profound decisions and resultantly, experience a severe degree of psychological distress (Netzer & Sullivan, 2014).

Accordingly, SDMs of the critically ill may lack family decision-making self-efficacy, which is one's confidence in their ability to make healthcare decisions for a loved one (Bandura, 1994; Nolan et al., 2009). Individuals with low self-efficacy levels may behave impulsively, lack persistence, experience feelings of helplessness, and are generally less successful in achieving their goals (Gullo, Dawe, Kambouropoulos, Staiger, & Jackson, 2010; Multon, Brown, & Lent, 1991; Stajkovic & Luthans, 1998; Strecher, McEvoy DeVellis, Becker, & Rosenstock, 1986). Therefore, SDMs with low levels of family decision-making self-efficacy may struggle serving in the SDM role (Nolan et al., 2009).

The only reported measure of family decision-making self-efficacy is the Family Decision Making Self-Efficacy Scale (FDMSE). Guided by qualitative work, the first version of the FDMSE possessed 23 items, encompassing six themes of family decision-making self-efficacy: being a surrogate, choosing treatments, accepting palliative care, meeting spiritual needs, maintaining family harmony, and communicating with health professionals (Nolan et al., 2009). In a subsequent pilot study, Nolan et al. (2009) reduced the scale to its current version (13 items), by deleting items with at least one inter-item correlation less than $r = .40$, and provided evidence of its known groups validity, content validity, and internal consistency. Presently, there are two versions of the FDMSE. Version selection depends on whether the patient possesses (conscious version) or lacks (unconscious version) decisional capacity.

The FDMSE has been used to measure decision-making self-efficacy in SDMs of patients with cancer (Dionne-Odom et al., 2018), amyotrophic lateral sclerosis (Sulmasy et al., 2017), dementia (Thompson, Bridier, Leonard, & Morse, 2018), and other chronic illnesses (Green et al., 2018). Despite its recent use, reports of the scale's psychometric performance in other populations is limited to reports of its relationship to other constructs (Dionne-Odom et al., 2018) and its internal consistency (Duckworth et al., 2014). Of note, examination of the FDMSE's construct validity, i.e., its ability to measure the six aforementioned themes of family decision-making self-efficacy has not been performed. Bandura (2006) recommends performing a factor analysis of self-efficacy scales to establish item relatedness to the construct under examination. Self-efficacy scales need to evaluate one particular domain of behavior. However, Bandura (2006) acknowledges that self-efficacy domains may be multidimensional if the behavioral domain in question is complex. Thus, self-efficacy scales may be able to capture multiple dimensions of a particular self-efficacy domain.

Family decision making for SDMs of critically ill patients is complex, dynamic, and possesses multiple behavioral facets (Daly et al., 2018; White, 2011). The diversity and independent complexity of these actions suggest that family decision making self-efficacy may be a multidimensional concept with distinct behavioral domains. To this point, Nolan and colleagues (2009) originally designed the FDMSE items to reflect six underlying themes. Thus, it is reasonable to suggest that family decision-making self-efficacy is a multidimensional concept. To our knowledge, factor analysis of the FDMSE has not been reported in any sample. Also, the FDMSE's validity and reliability has not been examined among SDMs of the critically ill.

Given the increased prevalence of critical illness, chronic diseases, and dementia, more Americans will assume the SDM role in the upcoming years ("Critical Care Statistics," 2019; Prince et al., 2016; Raghupathi & Raghupathi, 2018). Regardless of clinical domain, serving as an SDM elicits a negative emotional response that can persist for months (Wendler & Rid, 2011). As such, measuring family decision-making self-efficacy may allow us to identify those who may struggle in the SDM role and allow for the proactive provision of informational or emotional support for family members facing difficult treatment or end-of-life decisions. Examining the underlying structure of the FDMSE will enhance the validity of its measurement, informing the development of family decision-making self-efficacy focused interventions. Furthermore, examination of the FDMSE's validity and reliability in new, novel populations enhances its overall generalizability. Therefore, the purpose of this study was to evaluate the psychometric properties (i.e., validity and reliability) of the FDMSE among a sample of SDMs for the critically ill.

Methods

Design

This study was a secondary analysis of a parent study. The parent study was a three-arm, randomized clinical trial comparing the effectiveness of two electronic decision aids to a usual care (i.e., control) group. Data used in the present analysis were collected at the enrollment interview for participants prior to their exposure to a decision aid if they were allocated to an intervention group.

Parent study.—The parent study was designed to advance current paradigms of ICU decision support to promote the provision of value-concordant care for critically ill patients lacking the capacity to express their care preferences. Decision aid 1 was video-based, representing an active control. Decision aid 2 incorporated the use of avatar-based technology to give SDMs the opportunity to practice communicating with critical care clinicians in a simulated environment using a designated communication strategy. The control group did not receive any decision support as a part of the research study, but received the typical care and assistance routinely provided by members of the critical care team. The decision aid exposure consisted of a single 5–10 minute dose. The dose for decision aid 1 involved watching a video, whereas the dose for decision aid 2 involved learning and applying a communication strategy.

Sample and Setting

A convenience sample of 215 SDMs were recruited from four intensive care units (ICUs) at a tertiary hospital in Cleveland, Ohio. Participants were aged 18 or older, English speaking, and the next of kin or legal proxy for healthcare decision making for decisionally impaired patients who required a minimum of 72 hours of mechanical ventilation and expected to remain in the intensive care unit for two days after their qualifying dates.

Instruments

Patient and demographic characteristics were respectively captured through electronic chart reviews and an investigator-derived form. In addition to additional instruments administered in concordance with the parent study's procedures, subjective measures of decision-making self-efficacy, decisional fatigue, and decision-making preparation were also collected

Family decision-making self-efficacy scale.—The Unconscious Version of the FDMSE was used for this study. This scale has 13-items that are scored on a five-point Likert scale ranging from "cannot do at all" (1) to "certain I can do" (5). Items scores are summed, with higher scores indicating a greater amount of family decision-making self-efficacy. The FDMSE has acceptable convergent and known-groups validity, as well as internal consistency among SDMs for patients with ALS and pancreatic cancer (Nolan et al., 2009).

Preparation for decision making scale.—The Preparation for Decision Making Scale (PrepDM) measures one's preparedness to make a healthcare decision (Bennett et al., 2010). The PrepDM has 10 items scored on a five-point Likert scale ranging from 1 (not at all) to 5 (a great deal). A total score is create by summing the item scores, with higher scores indicating greater decision-making preparation. The PrepDM possesses convergent validity with decisional conflict, can discriminate between those who find a decision-support intervention useful, and possesses acceptable test-retest reliability (Bennett et al., 2010). In this sample, the internal consistency of the PrepDM internal consistency reliability (Cronbach's α) was .91.

Decision fatigue scale.—Decision fatigue describes an impaired self-regulatory state resulting in impaired-decision making behaviors (Pignatiello, Martin, & Hickman Jr, 2018). The Decision Fatigue Scale (DFS) measured decision fatigue (Hickman Jr, Pignatiello, & Tahir, 2018). The DFS measures symptoms of decision fatigue over the previous 24 hours with 10 items scored on a four-point Likert scale ranging from "Strongly Disagree" (0) to "Strongly Agree" (3). Higher scores indicate a greater amount of decision fatigue. The DFS possesses demonstrates convergent and discriminant validity, as well as acceptable test-retest and internal consistency reliability among SDMs of the critically ill (Hickman Jr et al., 2018). In this sample, the internal consistency (Cronbach's α) of the DFS was .84.

Procedures

Institutional review board (IRB) approval was obtained prior to ensuing study recruitment. Participants were recruited five to seven days per week with a three-phase approach. During phase one, a research assistant screened the electronic medical records of all ICU patients to identify patients who had received at least 72 consecutive hours of MV. Phase 2 consisted of verifying the remaining patient inclusion criteria with the critical care team. If patients met all inclusion criteria, SDMs were contacted and evaluated for study inclusion (phase 3). Participants willing to participate provided written, informed consent. Upon obtaining informed consent, the research assistant led the participant to a private interview location.

Data were collected during a structured face-to-face interview that lasted approximately 30–40 minutes. Following collection of SDM demographic characteristics, a research assistant administered the FDMSE, the PrepDM, and the DFS. Data were directly entered in a Research Electronic Electronic Data Capture (REDCap) database (Harris et al., 2009) and exported to SPSS (Version 25) for statistical analysis.

Statistical Analysis

Descriptive statistics for participants and DMSE items.—For participants and patients, descriptive statistics (frequencies, means, standard deviations) were used to describe the sample. Univariate statistics (e.g., frequencies, means, standard deviation, skewness, kurtosis) were computed for each of the 13 FDMSE items.

Validity.—For this study, the evidence of the FDMSE's validity was generated by evaluation of its *internal structure* (structural validity) and its *relationship to other constructs* (discriminant validity).

Internal structure.—The FDMSE's internal structure (i.e., dimensionality) was evaluated through an exploratory factor analysis (EFA). Factors were extracted using principal axis factoring (PAF) and were rotated through use of direct oblimin, which allows the extracted factors to be correlated with one another (Pett, Lackey, & Sullivan, 2003).

Assessing item appropriateness for EFA.—Before interpreting the EFA, the FDMSE item correlation matrix was inspected for highly collinear ($r > .80$) or unrelated ($r < .30$) items and Barlett's test of sphericity was interpreted for non-significance (≥ .05), which would suggest the inter-item relationships were inappropriate for an EFA (Johnson & Morgan, 2016; Pett et al., 2003). To verify the sample size was adequate for the EFA, the Kaiser-Meyer-Olkin (KMO) coefficient and measures of sampling adequacy (MSA) were examined for values less than .60 and .70, respectively (Pett et al., 2003).

Specification of factor structure.—Upon extraction, factors were retained for interpretation if their Eigenvalues were greater than one. Interpretation of the Eigenvalue plot using Cattell's (1966) scree test was performed as a secondary method to support factor retention. The item's factor loadings were interpreted by observation of the pattern matrix. If an item's factor loading was $< |.40|$, the EFA was repeated without the item(s) until all items possessed a primary factor loading $\geq |.40|$. If more than one item failed to load, the item with the lowest primary loading was removed and the EFA was repeated (Costello & Osborne, 2005).

Relationship to other constructs.—Another way to provide evidence for an instrument's validity is by evaluating its correlation with similar (i.e., convergent validity) constructs (Perron & Gillespie, 2015). To provide evidence for the FDMSE's convergent validity, we hypothesized it would demonstrate a moderate correlations with levels of decision fatigue (Hickman Jr et al., 2018) and a strong correlation with preparation for decision-making (Miller et al., 2013). Interpretation of correlation magnitude was derived from Cohen (1988), as cited in Shultz, Whitney, and Zickar (2013) (correlations of .10 are small, .30 are moderate, and .50 are large).

Reliability.—Reliability refers to the extent that measurements obtained from a particular sample are free from error (Perron & Gillespie, 2015). To evaluate the FDMSE's reliability, its internal consistency was measured through computation of Cronbach's α coefficients. While qualitatively labelling Cronbach α levels is discouraged, we followed standard convention and designated an α value ≥ .70 as a minimum threshold for acceptable internal consistency (Taber, 2018).

Results

Patient and SDM Characteristics

Patients were on average 60.9 years old (*SD* = 16.8 years) and the majority were White (74%). Half of the patients were males (53%) receiving care in a neuroscience (40%) or medical (30%) ICUs. Mean SDM age was 54.2 years (*SD* = 13.4 years). Consistent with prior work (White et al., 2018), the majority of SDMs in this sample were women (73%) and either the patient's spouse (40%) or child (33%). Additional SDM characteristics can be seen in Table 1.

Univariate and Multivariate Item Statistics

Descriptive statistics of the 13 FDMSE items are reported in Table 2. Visualization of the item histograms suggest that all FDMSE items were negatively skewed. However, the absolute value of the respective skew and kurtosis coefficients were less than 2 and 7 for the majority of the items, suggesting the items were normally distributed (Curran, West, & Finch, 1996). The majority of each item's inter-item correlations were less than .80 and exceeded .30, except for items 5 ("stop urging to eat") and 13 ("talk to other family members"). Item 5 had 8 inter-item correlations less than .30 and all of the inter-item correlations for item 13 were less than .30. Nonetheless, Barlett's test of sphericity was significant ($\chi^2 = 1140.34$, $p < .001$), indicating the items were appropriately related for EFA. All of the items' MSAs were > .70 and the KMO coefficient was .89, suggesting the sample size was large enough for conduct of EFA.

Internal Structure

The EFA of the 13-item FDMSE yielded a three-factor solution. Each respective factor's Eigenvalue was 5.5, 1.3, and 1.0, and explained 42.4%, 9.7%, and 7.8% of the respective items' variances. However, interpretation of the scree plot suggested a two-factor solution. Items 1 ("make decisions about healthcare"), 5 ("stop urging to eat"), and 13 ("talk to other family members") failed to load onto a factor, with highest primary loadings of .35, .33, and .17, respectively. Given the scree test interpretation and that item 13 ("talk to other family members”), possessed the weakest primary loading, item 13 was removed and the EFA was repeated.

The EFA of the 12-item FDMSE yielded a two-factor solution. Each factor possessed eigenvalues of 5.5 and 1.2, and explained 45.7% and 10.2% of the variance. All items demonstrated primary loadings ≥ │.40│ except for item 5 (“stop urging to eat”), with a primary loading of −.25. Thus, item 5 was removed and the EFA was repeated.

Similarly, the third EFA yielded a two-factor solution. Each factor possessed eigenvalues of 5.3 and 1.2, and explained 47.8% and 11.1% of the items’ respective variances. All items demonstrated a single primary loading ≥ |.40| and there were no cross-loading items (Table 3). The two rotated factors were strongly correlated with one another ($r = -.67$). Consistent with recommendations from Williams, Onsman, and Brown (2010), the two respective factors were named via inspection of common themes between factors’ items. We named factor 1 “treatment decision-making” and factor 2 “palliation decision-making”.

Relationship to Other Constructs

The 11-item FDMSE, as well as its subscales were significantly correlated with preparation for decision-making and decision fatigue. These correlation coefficients (Table 4) support the convergent validity of the modified two factor, 11-item FDMSE.

Reliability

Factors 1 (items 1, 2, 3, 7, 8, and 9) and 2 (items 4, 6, 10, 11, and 12), as well as all items of the 11-item FDMSE possessed acceptable internal consistency, with respective Cronbach’s α coefficients of .82 and .84. The internal consistency of the total 11-item scale was also acceptable (α = .88). Deletion of subsequent items would not improve the internal consistency of either factor or the 11-item scale.

Discussion

Our findings indicate the Unconscious Version of an 11-item FDMSE scale possesses a two factor structure and demonstrates acceptable convergent validity, and internal consistency reliability in a sample of SDMs for critically ill patients.

Our exploratory factor analyses identified that a two factor, 11-item version of the FDMSE was the most parsimonious structure in this sample of SDMs. A content analysis of the items of each factor was conducted. Each factor possessed a marker item (factor 1: “make decisions he/she would make” and factor 2: “make decisions that promote his/her comfort”). Interpretation of these marker items along with the other items from each respective factor suggests that factor 1 broadly reflects self-efficacy in making treatment decisions for the patient, whereas factor 2 reflects self-efficacy in making palliation-related decisions. Given the strong negative correlation between the two rotated factors ($r = -.67$), we suggest the two factors represents polarization in the factors orientation to aggressiveness of care, with Factor 1 representing a focus on treatment or life-sustaining decisions, and factor two embodying a palliative-focused care orientation. This conceptual organization is consistent with prior work examining treatment preferences among those with advanced illness (Mack, Weeks, Wright, Block, & Prigerson, 2010) and corresponds to two of the aforementioned themes initially used to create the 13 items of the original FDMSE (Nolan et al., 2009). Therefore, clinically, it may be worth independently evaluating each domain of family decision-making self-efficacy to ensure SDMs are confident in their ability to make decisions ranging across this continuum. For example, if SDMs lack self-efficacy in making palliative-related decisions, they may be unable to make decisions regarding aggressiveness of care related to symptom management or coping with their role concerning end of life care, which may result in the patient's receipt of care that is incongruent with his or her preferences and goals.

Additionally, we were able to provide ample evidence for the 11-item FDMSE's convergent validity through its relation to other constructs. To best of our knowledge, this is the first empirical data describing the relationship between decision-making self-efficacy and decision fatigue, an impaired self-regulatory state that results in diminished decision-making quality (Pignatiello et al., 2018). There is a growing body of evidence claiming SDMs of the critically ill may experience impaired reasoning and decision-making (Netzer & Sullivan, 2014). Elucidation of this relationship further contributes to this evidence collection. Behavioral and decision scientists may benefit from exploring the mechanistic relationships of other negative cognitive and behavioral states, such as decision fatigue, with family and other types of decision-making self-efficacy.

On the contrary, family decision-making self-efficacy and preparation for decision-making were weakly correlated – not moderately correlated as hypothesized. This finding is inconsistent with prior work describing a strong ($r > .65$) correlation between decision-making self-efficacy and preparation for decision-making among a sample of patients with cancer, who were contemplating enrollment in a cancer clinical trial (Miller et al., 2013). This discrepancy may partially be the result of instrumentation, as Miller and colleagues (2013) used a different self-efficacy scale. However, as before, this finding may be unique to the context of family decision-making in the ICU. For example, SDMs are usually overconfident in their ability to make decisions that are actually consistent with the patient's preferences (Fried, Zenoni, Iannone, & O'Leary, 2019; Majesko, Hong, Weissfeld, & White, 2012; Song, Ward, & Lin, 2012). Furthermore, high self-efficacy levels may contribute to overconfidence, which can impair one's ability to perform a task (Vancouver, Thompson, Tischner, & Putka, 2002). Thus, it is possible our sample of SDMs were overly confident in their ability to engage in family decision-making. This overconfidence manifested as an attenuated relationship between family decision-making self-efficacy and their preparation for decision making, which is another significant determinant of an SDM's decision-making ability (O'Connor et al., 1998).

Notably, two of the original FDMSE items failed to load onto either of the factors. These items were item #5, "Make decisions about whether to stop urging him/her to eat", and item #13, "Talk to other family members about his/her healthcare." During critical illness, SDMs may possess unrealistic optimism about their loved one's prognosis and clinicians may adopt a survival-focused mindset that precludes the consideration of withholding particular treatments (Kruser, Cox, & Schwarze, 2017; Zier, Sottile, Hong, Weissfield, & White, 2012). Furthermore, the majority patients within the ICU are too ill to eat (Hoffer &

Bistrian, 2016). Thus, item #5 may have failed to load onto a factor because it was not actively relevant to the SDM's current experience – the patient was too ill to eat or the SDM could not consider decisions that, in the moment, would detriment the patient's recovery.

Regarding item #13 (talk to other family members), communicating with other family members about the patient's plan of care is a vital part of the SDM role (White, 2011). However, this was the only item that pertained to communication, which could explain why it failed to load on the other factors, which focused more on decision-making. In addition, "health care" is an ambiguous term, as it can represent many different facets of care delivery within the ICU. We would advise modification or potential addition of the item(s) to reflect specific and contextually relevant components of healthcare communication. A sample modification could be, "Talk to other family members about how the plan of care aligns with the patient's preferences".

Our work also possesses clinical implications. Clinicians can use the 11-item FDMSE to validly evaluate an SDM's family decision-making self-efficacy, which may serve as an indicator on their readiness or ability to make decisions on behalf of their critically ill loved one. Consistent with expert recommendations, SDMs with low scores on either of the 11-item FDMSE's subscales may require tailored clinician support to meet their decisional needs (Kon, Davidson, Morrison, Danis, & White, 2016). Thus, we believe critical care practice can be enhanced by routinely screening SDMs for cognitive or emotional limitations, such as low family decision-making self-efficacy, that can compromise an SDM's ability to make value-concordant decisions for the patient. However, we caution clinicians from using the 11-item FDMSE as the sole indicator of one's capacity to engage in family decision-making, as SDMs are typically overconfident in their ability to make decisions, and suffer from additional physiological, cognitive, and emotional disturbances that can derail the self-regulatory processes necessary for decision-making (Dionne-Odom et al., 2018; Fried et al., 2019; Netzer & Sullivan, 2014).

This study possessed several limitations. First, use of a cross-sectional design prevented the authors from examining the structure of the FDMSE across time or generating evidence of the FDMSE's predictive validity or test-retest reliability. Furthermore, the authors did not collect any other type of SDM or decision-making self-efficacy measure, preventing evaluation of the FDMSE's criterion validity (Perron & Gillespie, 2015). In addition, this study's generalizability is limited due the specificity of its inclusion criteria. Thus, our findings may be non-replicable in other samples.

In conclusion, the Unconscious Version of the 11-item FDMSE was valid and reliable among a sample of SDMs for critically ill patients receiving mechanical ventilation. We identified two dimensions of the FDMSE that capture self-efficacy related to making treatment and palliation-related decisions. This may help clinicians further identify who may struggle in the SDM role and determine the types of decisions they may struggle making. Furthermore, family decision-making self-efficacy moderately correlated with states of decision fatigue and weakly correlated with preparation for decision-making. Thus, assessing an SDM's family decision-making self-efficacy may be useful in identifying individuals who need further evaluation for decision-making ability – SDMs with low levels may be in an impaired cognitive state such as decision fatigue, whereas SDMs with high levels may be overconfident and not as prepared as one may think. To enhance the generalizability of these findings, we recommend psychometric evaluation of the FDMSE in other samples where family decision-making is likely to occur.

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The funding agreement ensured the authors' independence in designing the study, interpreting the data, writing, and publishing the report.

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Table 1.

Sample Characteristics (*N* = 215)

Variables	*n* (%)
Gender	
Female	158 (73.5)
Male	57 (26.5)
Race/Ethnicity[a]	
White	160 (75)
Nonwhite	54 (25)
Relationship to Patient	
Spouse	86 (40)
Child	71 (33)
Sibling	22 (10.2)
Guardian/Durable Power of Attorney	17 (7.9)
Other Relative	17 (7.9)
Education	
Less than high school	5 (2.3)
High school diploma/GED	60 (27.9)
Associate Degree/Some College	78 (36.3)
Bachelors Degree	40 (18.6)
Post-baccalaureate	32 (15)
Annual Household Income[b]	
$20,000 or less	23 (10.8)
$21,000 to $49,999	68 (31.9)
$50,000 and greater	122 (57.3)
Provided care for patient prior to hospitalization	124 (57.7)
Made healthcare decisions for patient prior to hospitalization	92 (42.8)

[a] *N* = 214

[b] *N* = 213

Table 2.

Item Statistics for the Decision Making Self-Efficacy Scale

Scale Items	*M*	*SD*	*Skew*	*Kurtosis*
1. Make decisions about his/her health care.	4.7	.58	−1.8	3.6
2. Make decisions that he/she would make for himself/herself.	4.5	.77	−1.4	2.0
3. Make decisions that are in keeping with his/her values.	4.6	.64	−1.6	1.7
4. Make decisions about how he/she will receive food and fluid.	4.6	.71	−1.6	1.8
5. Make decisions about whether to stop urging him/her to eat.	4.2	1.1	−1.3	1.0
6. Make decisions about treatments to manage his/her pain.	4.7	.68	−2.9	10.0
7. Make decisions about his/her receiving resuscitation.	4.5	.80	−1.8	2.8
8. Make decisions about where he/she will be cared for at the end of life.	4.5	.87	−1.7	2.1
9. Make decisions about continuing to fight his/her disease.	4.6	.69	−1.7	1.9
10. Make decisions that will help him/her avoid suffering.	4.6	.69	−1.8	2.5
11. Make decisions that promote his/her comfort.	4.8	.52	−2.5	7.5
12. Make decisions that will respect his/her dignity.	4.8	.47	−3.3	13.5
13. Talk to other family members about his/her health care.	4.7	.62	−2.5	5.4

Table 3.

Factor Structure of the Decision Making Self-Efficacy Scale (*N* = 215)

Items	Factor 1	Factor 2
2. Make decisions that he/she would make for himself/herself.	**0.81**	0.15
3. Make decisions that are in keeping with his/her values.	**0.69**	−0.02
9. Make decisions about continuing to fight his/her disease.	**0.62**	−0.10
1. Make decisions about his/her health care.	**0.60**	−0.13
7. Make decisions about his/her receiving resuscitation.	**0.58**	−0.03
8. Make decisions about where he/she will be cared for at the end of life.	**0.53**	−0.18
11. Make decisions that promote his/her comfort.	0.01	**−0.89**
12. Make decisions that will respect his/her dignity.	−0.08	**−0.79**
10. Make decisions that will help him/her avoid suffering.	0.20	**−0.67**
6. Make decisions about treatments to manage his/her pain.	0.00	**−0.64**
4. Make decisions about how he/she will receive food and fluid.	0.21	**−0.45**

Note. Extraction method was principal axis factoring with oblique rotation (direct oblimin using the following parameters: $\delta = 0$, $\kappa = 4$). The reported factor loadings were derived from interpretation of the pattern matrix. The bolded coefficients represent an item's highest loading on the two extracted factors.

Table 4.

Correlations among variables ($N = 215$)

Variable	1	2	3	4	5
1. Family decision making self-efficacy	-				
2. Factor 1 (treatment decision-making)	.91**	-			
3. Factor 2 (palliation decision-making)	.86**	.64**	-		
4. Preparation for decision making[a]	.22**	.21**	.19**	-	
5. Decision Fatigue	−.42**	−.45**	−.24**	−.22**	-

[a] $N = 212$.

** $p < 0.01$.

Note. Scores for Factor 1 and Factor 2 were computed through summation of each factors' respective items.