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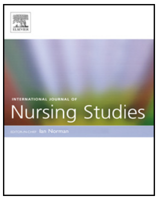

Family-clinician communication in the ICU and its relationship to psychological distress of family members: A cross-sectional study

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ABSTRACT

Background: Effective communication between family and clinicians has been identified as one of the most important factors in end-of-life care. Family members' perception of communication quality with clinicians may be associated with their psychological symptoms.
Objectives: To examine the association between family-clinician (physicians or nurses) communication quality and symptoms of anxiety, depression, and stress among family members of chronically critically ill patients in intensive care units (ICUs).
Design: A cross-sectional study.
Settings and participants: The participants were 71 adult family members of 71 patients who required prolonged mechanical ventilation in ten ICUs at three medical centres in Korea.
Methods: Participants completed the Quality of Communication (QOC) questionnaire, Hospital Anxiety and Depression Scale (HADS), and Impact of Event Scale-Revised (IES-R). The data were analysed using correlation, bivariate regression, and multiple regression analysis.
Results: The mean (SD) QOC score for physicians and nurses was 50.3 (15.2) and 42.9 (14.2), respectively. Forty-six participants (64.8%) were identified as being at risk for having anxiety symptoms; 22 (31%) had a mild risk and 24 (33.8%) had a moderate or severe risk. More family members (76.1%) were at risk for having depressive symptoms; 15 (21.1%) had a mild risk and 39 (54.9%) had a moderate or severe risk. For post-traumatic stress symptoms, 48 (67.6%) were at risk. While the QOC scores for nurses were negatively associated with participants' HADS-depression scores ($\beta = -.01$, $p = .03$), the QOC scores for physicians were not associated with the HADS or IES-R scores. This conclusion held after consideration of covariates.
Conclusions: The findings suggest that communication between family members and ICU nurses may be more influential than that with ICU physicians on psychological distress of family members in Korea. However, further research is warranted to confirm this relationship. Future interventions to reduce psychological distress in family members of chronically critically ill patients may need to target ICU nurses for improving communication skills.

What is already known about the topic?

- Family members of chronically critically ill patients are at high risk for experiencing symptoms of anxiety, depression, and stress.
- Effective communication between family members and clinicians has been identified as one of the most important factors in end-of-life care
- Family-clinician communication can influence family members' psychological symptoms.

What this paper adds

- Family members rated lowest for the quality of communication regarding the patients' impending death, patients' treatment preferences, and family members' spiritual or religious beliefs.
- Findings that family members' symptoms of depression were associated with their quality of communication with ICU nurses,

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but not with physicians, suggest that the quality of communication with ICU nurses may have more influence than that of ICU physicians on the psychological symptoms of ICU patients' family members.

1. Introduction

The chronically critically ill population is increasing with advances in intensive care. Although there is no universally accepted definition, the term chronic critical illness (CCI) is used in reference to patients with prolonged (e.g., ≥3 days) dependence on mechanical ventilation (Nelson et al., 2010).

In Korea, patients with CCI account for 5–6% of all patients who are admitted to the intensive care unit (ICU) (Kim et al., 2012; Lee et al., 2008). Studies have found mortality rates of CCI patients as high as 46% (Han et al., 2008; Kim et al., 2012; Lee et al., 2008), and over 45% of patients with CCI were transferred to other hospitals because of physical dysfunction and/or cognitive impairment after discharge from the ICU (Kim et al., 2012). The poor clinical outcomes of patients with CCI potentially affect family members' psychological symptoms, and there is growing recognition that family members of patients with CCI are at risk for symptoms of anxiety, depression, and stress (Hickman and Douglas, 2010).

Effective communication between family members and clinicians (physicians and nurses) has been identified as one of the most important factors in end-of-life care (Bernacki and Block, 2014). As patients with CCI are typically unable to communicate their needs or treatment preferences because of the severity of their illness or communication difficulties, medical decision making primarily involves family members and ICU clinicians (Nelson et al., 2010). Poor family-clinician communication often results in family members not having an adequate understanding of the patient's medical condition, prognosis, and the effectiveness of treatments, and this may cause family members to choose to continue life-sustaining treatments that have little therapeutic benefit (Adams et al., 2015; Mack et al., 2012). Thus, it is critical to have effective communication between ICU clinicians and the family members of patients with CCI. However, only limited research in Korea has explored family members' perceptions of the quality of their communication with ICU clinicians (Jo et al., 2017b), and it is not known if these perceptions are associated with symptoms of anxiety, depression, and stress in family members. Therefore, the purpose of this study was to describe how family members of patients with CCI perceive communication with ICU clinicians and examine whether family member' perception of communication is associated with their psychological distress, including anxiety, depression, and stress.

1.1. Theoretical framework

The clinician-patient communication model (Street and Epstein, 2008) was used to explain the relationship of family-physician and family-nurse communication with symptoms of family members' psychological distress. The model proposed pathways linking communication to health outcomes, such as pain control, functional ability, and emotional well-being. According to the model, communication between a patient and physician can directly and indirectly influence the patient's health outcomes (Fig. 1). For example, it is possible for a physician to alleviate a patient's symptoms of fear and anxiety directly by providing clear and comprehensive explanations. Patient outcomes can also be influenced indirectly through the mediating effects of (a) proximal outcomes, such as feeling understood, having trust in physicians, experiencing satisfaction with care, and being involved in decision making, or (b) intermediate outcomes, such as adherence to treatment and better medical decision-making (Street et al., 2009). Family members believe that physicians and nurses are obligated to disclose medical information about patients (Yang, 2008), and they rely on communication with these clinicians to understand the complex and unfamiliar healthcare environment. Given the model's mechanisms and constructs, family-ICU clinician communication might be sufficiently therapeutic to family members' symptoms of anxiety, depressions and stress if they perceive they have received complete and consistent information communicated with respect, sensitivity, and empathy. This study examined direct pathways from communication to psychological outcomes.

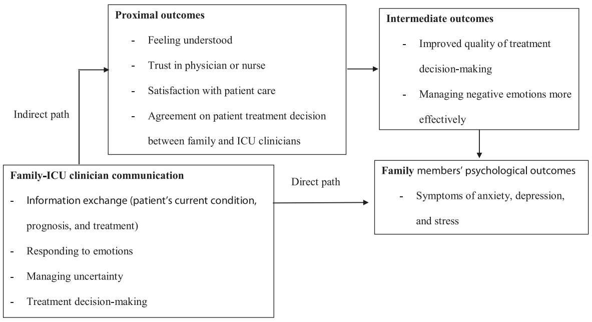

Fig. 1. Theoretical Framework. Adapted from "Key Interpersonal Functions and Health Outcomes", by R.L. Street and R.M. Epstein, in K. Glanz, B.K. Rimer, and K. Viswanath, Health Behavior and Health Education (p. 240), 2008, San Francisco: John Wiley & Sons. Copyright 2008 by John Wiley & Sons.

2. Methods

This study used a cross-sectional, descriptive, correlational design. The study was approved by the Institutional Review Board of the University of North Carolina at Chapel Hill in the United States (#15-1477) and the three medical centres in Korea (#XC15QAMI0080S, #XC15QAMI0080V, and #XC15QAMI0080K) where the study was conducted. All the participants gave their written informed consent and were informed that they could withdraw their consent at any time.

2.1. Setting and sample

Participants were recruited from ten ICUs of three medical centres between December 2015 and April 2016. Of the ten ICUs, there were three surgical (SICU), three medical (MICU), three neuroscience (NSICU), and one cardiac (CICU). The following inclusion criteria were used to identify patients with CCI and their family members who were eligible for participation in the study. The criteria for patients were: 1) 19 years of age or older (the legal age to consent in Korea), and 2) being chronically critically ill, i.e., failed to be weaned or not considered for weaning within three days of initiation of mechanical ventilation. We used three days as the criterion in order to exclude patients who were merely slow to wean from ventilation while capturing those who were likely to have CCI with clinical problems associated with a high risk of continued morbidity as well as mortality (Douglas et al., 2010). In the ICU, the target for weaning patients from mechanical ventilation is typically between 48 and 72 h after initiation (MacIntyre et al., 2005). Epstein et al. (1997) reported that failure to extubate within three days of initiating mechanical ventilation in the ICU was associated with patients' increased hospital mortality, transfer to extended care facilities, and longer ICU stays. Therefore, for the purpose of this study, we used a duration of at least three days as an operational definition of CCI patients. Family members were eligible if they were: 1) 19 years old or older, 2) self-identified as a primary caregiver (i.e., the family member most likely to provide pre-admission or post-discharge care giving) or the family decision maker (i.e., the family member most involved in patient's treatment decisions), and 3) a 'spokesperson' of the family who communicated with ICU physicians and/or nurses about the patient's illness or treatment.

Based on power analysis calculations using free software created by Soper (2013), a sample size of at least 67 was needed to detect a medium effect size of .15, with statistical power of .80 at an alpha level of .05, with two independent variables: family members' perceptions about the quality of communication with ICU physicians and ICU nurses. Based on the available data from the participating hospitals, we estimated that 23% of patients admitted to the ICU would meet the eligibility criteria of being dependent on mechanical ventilation for more than three days. Additional potential participants also needed to be recruited because researchers have reported a 20%–30% refusal rate for participation in studies on family members of CCI patients (Douglas et al., 2002, 2005). Therefore, a total of 170 family members were approached to participate in our study. Of these, 99 (58.2%) refused to participate, and thus 71 (41.8%) completed the survey. The main reason for refusal was "feeling overwhelmed" (56.6%).

2.2. Data collection and measures

The ICU nursing staff initially identified eligible patients and approached their family members during their ICU visits to assess their willingness to meet with the investigator. The investigator approached the willing family members after their ICU visits to assess their eligibility and interest in study participation. The family members completed the following survey measures in a private room near the ICU after providing written consent.

2.2.1. Quality of communication with ICU clinicians

Family members' perceived quality of communication with ICU clinicians was measured separately for physicians and nurses, using the Korean version of the Quality of Communication (QOC) questionnaire (Cronbach's $\alpha = .88$ for physicians and .87 for nurses) (Jo et al., 2017a). The Korean version of the QOC contains 21 items asking respondents to rate the clinician's general communication skills and communication about end-of-life care on an 11-point scale (0 = not at all satisfied, 10 = extremely satisfied). Additionally, two response options are offered: 'physician or nurse didn't do this' and 'I don't know'. The first 20 items measure specific aspects of communication, such as allowing enough time for communication about the patient's illness and treatment, and the remaining item measures overall communication quality (Engelberg et al., 2006). The total score, which ranges from 0 to 100, is the mean of the 20 items multiplied by 10. The last item about overall communication quality was not scored. The answer 'physician or nurse didn't do this' is replaced by a score of 0. The substitution of 0 for 'physician or nurse didn't do this' is based on the assumption that the failure to complete an item warranted a low score because all of the items are identified as important aspects of communication with physicians and nurses. A respondent answer of 'I don't know' is replaced with the median domain score of the valid items for that respondent. It is assumed that the selection of 'I don't know' implies that the item was performed but could not be rated by the respondent. Higher scores indicate better quality of communication (Engelberg et al., 2006).

2.2.2. Symptoms of anxiety, depression, and post-traumatic stress

Symptoms of anxiety and depression were measured using the validated Korean version of the Hospital Anxiety and Depression Scale (HADS) (Oh et al., 1999). The HADS is a 14-item self-report scale with anxiety and depressive symptom subscales. Each subscale consists of 7 items that are rated using a 4-point scale from 0 (not at all) to 3 (very often). The subscale total scores range from 0 to 21; 0–7 is considered normal, 8–10 is considered borderline abnormal (mild), and 11–21 is considered abnormal (11–14 = moderate, 15–21 = severe). The internal consistency of the

Table 1
Characteristics of Patients and Family members.

Variable	Patient (N = 71) n (%)	Family member (N = 71) n (%)
Age, M (SD)	63.8 (15.9)	49.6 (14.1)
Gender, female	36 (50.7)	46 (64.8)
Education		
<High school		7 (9.8)
High school graduate		19 (26.8)
≥College graduate		45 (63.4)
Relationship to patient		
Child		36 (50.7)
Spouse		23 (32.4)
Parent		6 (8.5)
Sibling		4 (5.6)
Daughter- or son-in-law		2 (2.8)
Hospital length of stay, Median (IQR)	13 (8, 28)	
ICU length of stay, Median (IQR)	10 (6, 17)	
Days on mechanical ventilation, Median (IQR)	9 (6, 15)	
Primary ICU admission diagnosis		
Respiratory disease	22 (31.0)	
Neurologic disease	13 (18.3)	
Neoplastic disease	11 (15.5)	
Cardiovascular disease	8 (11.3)	
Renal disease	4 (5.6)	
Cardiac arrest	2 (2.8)	
Other[a]	11 (15.5)	
Prior ICU experience during a previous admission (Yes)		35 (49.3)
Experience with death for family or friend (Yes)		40 (56.3)
Experience with prescription medication for mood disorder (Yes)		7 (9.9)
History of seeing a psychiatrist or counsellor for mood disorder (Yes)		8 (11.3)

Note. ICU = Intensive Care Unit.

[a] Other includes acute duodenal ulcer, alcoholic ketoacidosis, bacteraemia, chronic graft-versus-host disease, disseminated intravascular coagulation, monoclonal gammopathy of undetermined significance, and septic shock.

HADS in this study was .91 for HADS-anxiety and .82 for HADS-depression. Symptoms of post-traumatic stress were measured using the Korean Impact of Event Scale-Revised (IES-R). The IES-R consists of three subscales: intrusion, avoidance, and hyperarousal (Weiss and Marmar, 1997). Each item evaluates the symptom severity on a 5-point scale rated from 0 (not at all) to 4 (extremely) for the preceding seven days, with the total score ranging from 0 to 88 (Weiss and Marmar, 1997). A total score of 22 is suggested as the cut-off score for predicting post-traumatic stress symptoms in Korea (Lim et al., 2009). Cronbach's alpha for the Korean IES-R in this study was .93.

2.2.3. Characteristics of patients and family members

Clinical data abstracted from the electronic medical records included admitting diagnosis, length of ICU and hospital stay, and the period of mechanical ventilator dependence. Family members' sociodemographic information was collected using a sociodemographic form. The form also included questions about the respondent's experiences with ICU visits and death and their mental health history (experience with prescription medications and seeing psychiatrists or counsellors for mood disorders).

2.3. Data analysis

The data were analysed using SAS version 9.3 (SAS Institute Inc., Cary, NC). Descriptive statistics, including means, standard deviations, medians, and percentages, were computed to summarize the sample characteristics and survey scores. Mean and SD were used to describe continuous variables, such as participants' age and survey scores (QOC with physicians, QOC with nurses, HADS-anxiety, HADS-depression, and IES-R). Median was used to describe hospital length of stay, ICU length of stay, and days on mechanical ventilation. Correlation (r), analysis of variance (F), and regression analyses (β) were conducted to examine the relationship between the QOC scores and the HADS and IES-R scores, possibly controlling for covariates. Potential covariates considered for bivariate and multiple regression analyses were patient characteristics (age, gender, hospital and ICU length of stay, days on mechanical ventilation, and primary ICU admission diagnosis) and family member characteristics (age, gender, education, relationship to patient, experiences with ICU visits and death, and mental health history). The HADS and IES-R scores were recoded using a square root transformation because their residual plots were skewed.

3. Results

3.1. Characteristics of patients and family members

The mean age of patients was 63.8 years (*SD* = 15.9); 46 (64.8%) were admitted with respiratory, neurologic, and neoplastic diagnoses; and the median ICU stay was 10 days (interquartile range [IQR] = 6, 17) (Table 1). The mean age of family members was 49.6 years (*SD* = 14.1); 59 (83.1%) were either an adult child or spouse of the patient. Thirty-five family members (49.3%) had previous ICU experience as a patient or caregiver to a patient during a previous admission, and seven (9.9%) had been treated for mood disorder.

3.2. Communication quality with ICU clinicians

The mean (SD) total score of the QOC was 50.3 (15.2) for physicians and 42.9 (14.2) for nurses (Table 2). The mean overall rating of the quality of communication with physicians was 7.7 (out of 10) and 7.9 for nurses. Ratings for the quality of communication regarding the patients' impending death and family members' spiritual or religious beliefs were very low for physicians (.6 to 1.1 on average, in contrast to the other items that ranged from 2.4 to 8.6). Similarly, the quality of communication regarding the patients' treatment preferences and family members' spiritual or religious beliefs, communication quality was also rated very low for nurses (.3–1.6 on average, in contrast to the other items that ranged from 2.8 to 8.3). Between 76% and 93% of the respondents reported that physicians and nurses did not perform these communication behaviours.

Table 2
Scores of Measures.

Measure	Mean (SD)
QOC with physicians	50.3 (15.2)
QOC with nurses	42.9 (14.2)
HADS-anxiety	10.1 (5.3)
HADS-depression	11.3 (4.7)
IES-R	31.5 (18.7)

Note. QOC = Quality of Communication; HADS = Hospital Anxiety Depression Scale; IES-R = Impact of Event Scale-Revised.

3.3. Symptoms of anxiety, depression, and post-traumatic stress

The mean (*SD*) scores of these three measures are presented in Table 2.

Forty-six (64.8%) family members were identified as being at risk for having anxiety symptoms (HADS-anxiety score $\geq$11); 22 (31%) had a mild risk and 24 (33.8%) had a moderate or severe risk. More family members (76.1%) were being at risk for having depressive symptoms (HADS-depression score $\geq$11); 15 (21.1%) had a mild risk and 39 (54.9%) had a moderate or severe risk. For post-traumatic stress symptoms, 48 (67.6%) were at risk (IES-R scores $\geq$22).

3.4. Perceived communication quality and anxiety, depression, and post-traumatic stress

The QOC scores with nurses had a weak relationship with the HADS-depression scores ($r = -.26$, $p = .03$) but were not significantly correlated with the HADS-anxiety ($r = -.09$, $p = .46$) or IES-R scores ($r = -.15$, $p = .22$). The QOC scores with physicians were not significantly correlated with the HADS-anxiety ($r = -.07$, $p = .56$), HADS-depression ($r = -.15$, $p = .20$), or IES-R scores ($r = -.17$, $p = .16$). In bivariate regression analyses, the QOC scores with nurses was negatively associated with the HADS-depression scores ($\beta = -.01$, $p = .03$).

Among the possible covariates, only family members' experience with prescription medications was associated with the HADS-anxiety scores, F (1, 69) = 4.26, $p = .04$, and none of them was associated with the HADS-depression scores. However, multiple regression analysis identified that family members' gender, relationship to the patient, and experience with prescription medications were significantly associated with the IES-R scores ($p < .05$), accounting for 33% of the variance (Table 3).

Table 3
Significant Variables Associated with Post-Traumatic Stress Symptoms.

Characteristics	DF	Mean Square	F	p	R-Square
					.33
Gender	1	14.12	5.90	.02	
Relationship to patient	3	10.03	4.19	.009	
Experience of medication	1	29.34	12.25	.0009	
Seeing psychiatrist or counsellor	1	2.08	.87	.36	

Note. DF = degrees of freedom.
Post-traumatic stress symptoms were computed using square root transform.

4. Discussion

In this study, we found that family members of patients with CCI in Korea were moderately satisfied with the quality of their communication with ICU clinicians and roughly two-thirds of them were at risk for symptoms of anxiety, depression, and post-traumatic stress. Of these, approximately 25% of family members were at risk for severe symptoms of anxiety and depression. Our findings indicate family members' symptoms of depression may be associated with their quality of communication with ICU nurses, but not with physicians. Depression scores were inversely associated with quality of communication with ICU nurses. In addition, most family members reported that ICU physicians and nurses did not perform several communication behaviours that are considered key elements of the quality of communication, such as informing the family member about the patient's impending death or asking about the family member's spiritual or religious beliefs.

The prevalence of symptoms of anxiety, depression, and stress in our sample was similar to that reported in studies conducted in France and the United States (44%–69%) (44%–69%) (Anderson et al., 2008; McAdam et al., 2012; Pochard et al., 2001, 2005). Several U.S. studies (Douglas and Daly, 2003; Douglas et al., 2005; Im et al., 2004; Van Pelt et al., 2007) have reported that, although their number of depressive symptoms decreased over time, 23–36% of family members remained at risk for symptoms of depression 2–12 months after the patient's ICU discharge. Given these findings, it is reasonable to suggest that Korean family members' symptoms of anxiety, depression, and stress may persist for months following patients' ICU discharge or death. In addition, this study shows that many female family members and those with a history of medical or psychiatric treatment for mood disorder are at greater risk for symptoms of stress than their counterparts. These findings may be useful to identify which family members are at increased risk for symptoms of anxiety, depression, and stress. ICU physicians and nurses who are aware of the symptom severities of family members can provide early interventions to support them, which can be helpful in reducing family members' psychological symptoms and prevent long-term consequences such as anxiety disorders and major depression.

Our finding that family members' symptoms of depression were associated with their quality of communication with ICU nurses, but not with physicians, suggests that the quality of communication with ICU nurses may have more influence than that with ICU physicians, on the psychological symptoms of ICU family members in Korea. In the Korean culture, where a paternalistic model of medical practice is common, family members often take it for granted that physicians will make all the treatment decisions for patients, and they tend to feel uncomfortable asking physicians detailed questions about the patient (Chang et al., 2013; Shin et al., 2016). In this cultural context, communicating with family members may not be seen as physicians' primary responsibility, and family members turn to nurses for information about the patient's medical condition and treatment options. However, further research is needed to confirm the relationship between the quality of communication with ICU nurses and family members' symptoms of depression.

The finding that most family members did not recall ICU clinicians discussing the patient's prognosis with them or asking them about preferences and spiritual needs may also reflect cultural differences. Talking about a patient's poor prognosis is usually discouraged because openly discussing death and dying is a taboo in Korea (Koh et al., 2018; Shin et al., 2016). Therefore, ICU physicians and nurses may try to avoid discussing a poor prognosis and end-of-life treatment options. Typically, nurses in Korea consider providing prognostic information and discussing treatment options to be the physicians' responsibility (Jo, 2010), and thus, it is unlikely that they actively engage in such discussions.

ICU nurses can play a significant role in facilitating communication between family members and ICU physicians and in supporting family members. For example, ICU nurses may encourage the treating physician to provide patient information to the family or prompt a family member to ask the physician certain questions. Additionally, ICU nurses can provide emotional support to family members as they process patient information, such as poor prognoses or end-of-life treatment issues (Adams et al., 2011). ICU nurses spend more time with patients and family members than any other ICU care provider. In doing so, nurses develop trusting relationships with family members and assess their needs, all of which place ICU nurses in a position to facilitate family-ICU physician communication. Therefore, greater attention should be given to ICU nurses' roles in both family-ICU physician and family-ICU nurse communication as well as to nurses' perceived barriers in attempting to fulfil these roles. With a better understanding of how ICU nurses enact these roles, nursing education, practice, and research can work to facilitate ICU communication to improve sharing of patient information and thus empower patients' family members.

Generally, family members expect sufficient information about the patient's prognosis, comprehensible explanations about potential treatment, and answers to their questions (Al-Mutair et al., 2013). Although family members in Korea may also have similar needs (Yang, 2008), our findings suggest that family members of CCI patients may not be satisfied with the manner in which ICU physicians and nurses communicate about end-of-life care, such as discussing prognoses, providing emotional support, and deliberating with family members about treatment decision-making. In order to improve end-of-life communication, current education for physicians and nurses should turn to communication skills training focusing on empathetic listening and providing emotionally supportive statements. Moreover, communication interventions, such as provision of information leaflets and having regular family meetings attended by patients, family members, and care providers, would be beneficial to family members of CCI patients. Because there are no intervention studies to improve family-clinician communication in Korea (Jo et al., 2017b), intervention research in this area is urgently needed.

5. Limitation

This study is limited in that the Korean version of the QOC is new and requires further testing, although the original English version of the QOC has been widely used. While the eligibility criteria were designed to include family members of CCI patients for whom end-of-life care communication would apply, the degree to which each patient's underlying illness and severity affected the amount of family-ICU physician or family-ICU nurse communication regarding end-of-life care is unknown. Our sample size was small and recruited from hospitals in metropolitan areas; hence, our findings may not be generalizable to other populations. Although we found several variables were associated with family members' symptoms of anxiety and stress, the study was not powered to test such associations formally. Thus, our analytic approach was exploratory. Nonetheless, our findings revealed several areas of end-of-life communication in Korea that need to be improved. Furthermore, our findings suggest that effective communication with ICU nurses may help reduce the psychological symptoms of family members of patients with CCI in Korea.

6. Conclusion

Psychological symptoms in our sample of family members of patients with CCI in Korea were common and the quality of communication with ICU nurses was associated with depressive symptoms among family members. The culture surrounding death and dying and physician-driven medical practice in Korea appeared to have played a role in family-clinician communication in this study. Currently, much of what has been studied regarding family-physician or family-nurse communication in Korea has been based on patients' medical chart reviews. The Korean version of the QOC questionnaire needs further validation and psychometric evaluation including stability reliability, construct validity, and responsiveness with a larger sample. Research that utilizes the validated Korean version of the QOC would greatly enhance our understanding of family members' perceptions about the quality of communication with ICU clinicians. Finally, future research should also focus on developing interventions to reduce psychological distress in family members of patients with CCI.

Author contributions

Study design: Minjeong Jo, Mi-Kyung Song, George J. Knafl, Data collection: Minjeong Jo, Yang-Sook Yoo, Data analyses: Minjeong Jo, George J. Knafl, Manuscript drafting and revision: Minjeong Jo, Mi-Kyung Song, George J. Knafl, Linda Beeber, Yang-Sook Yoo, Marcia Van Riper.

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Conflicts of interest

None.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ijnurstu.2019.03.020.

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