



Factors influencing neonatal intensive care unit nurses' parent partnership development

Eun Kyoung Kim, RN, MSN^a, In Young Cho, RN, Ph.D.^{b,*}, Ji Yeong Yun, RN, Ph.D.^c, Bobae Park, RN, MSN^d

^a Chonnam National University Hospital, Gwang-ju, South Korea

^b College of Nursing, Chonnam National University, South Korea

^c Department of Nursing, Jesus University, South Korea

^d Department of Nursing, Seoul National University Hospital, Department of Nursing, College of Nursing, Yonsei University, South Korea

ARTICLE INFO

Article history:

Received 25 May 2022

Revised 28 October 2022

Accepted 29 October 2022

Keywords:

NICU

Nurse

Empowerment

Parent

Partnership

ABSTRACT

Background: Neonatal nurses play an important role in the development of effective partnerships, as they have more consistent interactions with the patients' parents and can encourage parental involvement. This study aimed to identify factors influencing neonatal intensive care unit (NICU) nurses' development of partnerships with parents of high-risk infants in South Korea based on King's interacting systems theory.

Methods: We collected data utilizing a structured questionnaire, which included the following variables: developmental supportive nursing competency, empowerment, emotional intelligence, patient-centered communication skills, interpersonal competence, nursing work environment, and nurse-parent partnership. The participants were 140 pediatric nurses with at least one year of NICU experience in South Korea. We used SPSS/WIN 26.0 to analyze the data.

Findings: Of the factors evaluated, empowerment ($\beta = 0.35, p < 0.001$), patient-centered communication skills ($\beta = 0.25, p < 0.01$), interpersonal competence ($\beta = -0.27, p = 0.001$), emotional intelligence ($\beta = 0.25, p = 0.005$), age ($\beta = -0.15, p < 0.01$), and gender ($\beta = 0.12, p = 0.03$) explained 62.4% of the total variance of the nurse-parent partnership. Our results identify the factors affecting NICU nurses' development of partnerships with parents of high-risk infants.

Implications for practice: Strategies and efforts to enhance the nurse-parent relationship must consider improving nurse empowerment, intelligence, and interpersonal factors.

© 2022 Elsevier Inc. All rights reserved.

Purpose

The admission of high-risk infants into a neonatal intensive care unit (NICU) is a stressful experience, and it can be challenging for parents to navigate this environment with their medically vulnerable infants. Having an infant in the NICU is linked to psychosocial stress, depression, and anxiety in first-time parents (Bainter et al., 2020; Garfield et al., 2021). Reducing these parents' emotional distress levels and helping them cope with stress is an important neonatal nursing task (Cho, 2018a, b; Trajkovski et al., 2012). Bowlby (1973) emphasized the role of family in minimizing the negative effects caused by their separation from hospitalized infants (Alsop-Shields and Mohay, 2001). Family-centered care has drawn attention to the core philosophy of child healthcare, including neonatal nursing (Bainter et al., 2020).

With technological and medical advancements in the area of neonatal care, an increasing number of younger, smaller, and more medically complex infants are surviving. Parents and medical professionals are facing new challenges as a result. The need for family-centered partnerships between parents of premature infants and nurses is not a new phenomenon, and health professionals and families have worked to make family partnerships part of the pediatric care culture, including in NICUs (Bainter et al., 2020; Trajkovski et al., 2016).

In this context, partnerships between pediatric nurses and parents of hospitalized children are one component of family-centered care. Parents are core members of their baby's care team and medical care should be considered in the context of the family (Choi & Kim, 2014; Umberger et al., 2018). Parents, as the people that meet infants' emotional needs and form early attachments—both of which cannot be replaced by the mechanical environment—are necessary participants in clinical childcare, alongside nurses (e.g., Lee, 2007).

The term “partnership” recently appeared in the pediatric nursing literature and is widely accepted as a central philosophy of pediatric nursing practice. These nurse-parent partnerships are based on mutual

* Corresponding author at: College of Nursing, Chonnam National University, 160 Baekseo-ro, Dong-gu, Gwang-ju 61469, South Korea.
E-mail address: kikiin1024@jnu.ac.kr (I.Y. Cho).

respect in caring for the child, sharing information through positive and open communication, and negotiating the appropriate roles of each party (Yoo et al., 2020). Parent–nurse partnerships can help parents mitigate the NICU's challenges and empower, encourage, and support them as caregivers of sick and fragile newborns (Umberger et al., 2018).

Especially, the NICU setting requires continuous interaction between pediatric nurses and parents because hospitalizations tend to be for long-term or chronic conditions. This approach creates an opportunity for parent–child bonding during the critical early life period and enhances parental caregiving competencies, which may help parents to provide better care post-discharge (Maria et al., 2021). However, this cooperation cannot be achieved without the professional attitude that families can choose meaningful goals. Pediatric nurses play an important role in enhancing the partnerships between parents and health professionals (Choi & Kim, 2014).

Neonatal nurses can maintain lasting relationships with parents, encourage parental involvement, and help redefine parental roles, which are important in developing effective partnerships (Bruns & McCollum, 2002; Reis et al., 2010). They act as educators and facilitators who maintain positive communication with parents and encourage parental participation. They could share information without bias so that the families of hospitalized children can make care decisions and share responsibilities, in addition, nurses' attitudes toward the importance of the family must be considered to improve the quality of family-centered care. Therefore, it is critical to enhance nurses' partnership competency in these roles (Day, 2013).

Given the necessity and importance of such partnerships, globally, there has been a surge in research on the partnership between nurses and parents in nursing research on nurse–parent partnerships in the pediatric; Similarly, some hospitals in South Korea began introducing them in the early 2000s to increase the frequency of parental visits to the NICU. In addition, nursing research on such partnerships in South Korea has increased since the 2010s, including within specific settings such as pediatric units, pediatric intensive care units (PICUs), and neonatal intensive care units (NICUs). This increase followed the development of the Pediatric Nurse Parents Partnership Scale (PNPPS; Choi & Bang, 2013), which assesses partnerships between pediatric nurses and parents of hospitalized children in South Korea.

However, COVID-19-related restrictions on face-to-face visits have made these partnerships more difficult. Hospitals have prohibited or sharply limited family visits to keep patients and staff safe. Further, the mechanization of the NICU environment, demand for technical proficiency, overwork, and a lack of understanding of nurse–parent partnerships (Trajkovski et al., 2012; Woo et al., 2021) are barriers to these partnerships. Families are essential caregivers and should be encouraged and supported in participating as partners in the NICU, even during a public health crisis such as COVID-19. It is important to encourage partnerships between NICU nurses and parents for the developmental nursing of high-risk newborns, which requires parents' participation (Bainter et al., 2020).

Given the importance of developing effective partnerships between parents and nurses even during a crisis, to develop effective and realistic interventions to promote nurse–parent partnerships, a study providing a comprehensive understanding of the influencing factors in the context of NICUs is required. Although nurse–parent partnership is now recognized as an integral component of nursing care for preterm infants, limited studies have reported on the factors influencing nurses' developing partnership practice, including NICU nurses' personal, interpersonal, and social characteristics.

According to previous studies, nurses' personal characteristics (e.g., education level, years of nursing experience, psychosocial factors, and technical competency), interpersonal factors (communication, interpersonal relationships), and nursing work environment (e.g., patient caseloads, work hours) influence nurses' practicing partnership care in the NICU (Roets et al., 2012; Trajkovski et al., 2016). For personal factors, empowerment, which is defined as a sense of

optimism in a person's ability to adapt, is a powerful influencing factor related to partnerships (Choi & Kim, 2014, Peyrovi et al., 2016). Emotional intelligence, or the ability to process and manage emotions, could be another factor (Mun & Yoo, 2020). In the clinical field, nurses could provide not only physical stability but also psychological stability and patient satisfaction by performing nursing tasks in direct relationships with patients and caregivers (McQueen, 2004). In addition, to develop skills and competence, nurses need to understand behavioral cues by carefully observing the behavior of premature infants and provide appropriate individual and family-centered nursing care accordingly (Hong & Son, 2020). Therefore, this is an important factor in carrying out the partnership.

Another study revealed that nurses' interpersonal competence (communication, interpersonal competence) was also positively associated with their practice of partnership care (Carnevale et al., 2016; Cho, 2018a; Lam et al., 2007). Also, social factors can impact their partnership with parents. In a system that often demands that nurses do more with fewer resources, nurses not only have less time to focus on individual needs but also perceive that institutions place less value on the invisible work of meeting the emotional needs of the patient (Bone, 2002; Shanta & Connolly, 2013). Nursing working environment, including nursing organization and culture, in which mechanical devices must be handled proficiently and nursing is performed according to the developmental age of newborns, can be related to partnerships (Roets et al., 2012). Thus, partnerships could be influenced by various social dynamics.

Many psychosocial theories have been applied to explain the complex nature of human beings, including King's interacting systems theory (IST) which involves personal, interpersonal, and social systems (Shanta & Connolly, 2013). These systems center on the dynamic interaction of humans with each other and the environment and involve perception as essential to all interactivity. King's theory is used to improve the interaction of nurses and patients for optimal care and provides a framework for nurses to manage interactivity to meet complex health needs.

Thus, considering that the characteristics of the partnership between nurses and parents are influenced by diverse factors including personal and socio-cultural factors, research needs to explore NICU nurses' partnerships with parents of high-risk infants based on King's interacting systems theory. Based on previous studies above, this study aimed to identify the personal, interpersonal, and social factors that affect the formation of partnerships between parents and nurses of high-risk infants in NICUs based on King (1981) interacting systems theory, which emphasizes human-centered interaction.

These findings are expected to augment the understanding of nurse–parent partnership formation in the healthcare and cultural context of South Korean society and may be used to develop an effective and systematic partnership intervention strategy.

Conceptual framework

King (1981) developed a conceptual model for nursing based on the idea that humans interact with the environment (King, 1981). King's conceptual framework includes three interacting systems, with each having a distinct group of concepts and characteristics: the personal, interpersonal, and social systems; which assumes that human beings are the focus of nursing, which evolved from the General Systems Theory of (Bertalanffy & Sutherland, 1974).

The central focus of King's framework is individual as a dynamic being whose perceptions of objects, persons, and events influence his behavior, social interactions, and health (King, 1971). The personal system considers people as humans first before nurses and patients and emphasizes understanding individuals through perception, the self, body image, and growth and development (King, 1981). King's conceptual framework indicates that effective emotional management requires the abilities to perceive emotions accurately and to use emotions to think and judge appropriately. From this perspective, neonatal nurses'

individual perceptions of empowerment, emotional intelligence (Wong & Law, 2002), and developmental supportive competency (Hong & Son, 2020) are essential and can be foundational to develop partnership.

The interpersonal system describes the interaction of two or more individuals (King, 1981). The concepts associated with interpersonal systems are interaction, transaction, communication, and roles. The interactions between the nurse and the client, or the dyad, represent an example of an interpersonal system. In this sense, communication ability is the basic literacy that a child must have to understand verbal and non-verbal information (Park & Oh, 2018). Nurses need to establish communication for successful partnership care practices (Cho, 2018a, 2018b). Carnevale et al. (2016) reported the correlation between interpersonal relationships, communication, competence, and communication ability can ensure high-quality nursing and improve patient satisfaction.

Social systems describe interpersonal relationships that affect social behavior, interactions, perceptions, and health. Social systems refer to groups of people within a community that shares common goals, interests, and values, which provides a framework for social interaction and relationships and establishes rules of behavior and courses of action (King, 1971). The social system can influence social behavior and health within a nursing environment (King, 1981).

It is within these organizations that individuals' beliefs, attitudes, values, and customs are formed. The nursing working environment can promote partnership by encouraging nurses to have a positive mindset and parental participation.

Based on the above review, we developed a conceptual framework of factors that influence nurses' competency to develop partnerships with parents of NICU patients based on King's interacting systems theory. We assumed that each of the three systems could help nurses achieve individual goals, growth, and development, leading to an effective partnership.

This study aimed to identify the factors influencing nurse-parent partnership formation in the NICU, focusing on the personal (empowerment, emotional intelligence, and developmental supportive nursing competency), interpersonal (interpersonal competence and communication), and social (work environment) systems (King, 1981). The conceptual framework of this study is shown in Fig. 1.

Design and methods

Design

This was a cross-sectional study to identify factors affecting NICU nurses' competency to develop partnerships with parents of hospitalized infants.

Participants

The study sample consisted of NICU nurses in university hospitals in South Korea. The inclusion criteria were: (1) NICU nurses who understood the study and completed the research questionnaire and (2) NICU nurses with at least one year of experience in providing care to pediatric unit patients (Fegran et al., 2008). We based the second criterion on a study by Fegran et al. (2008), who reported that ICU pediatric nurses need a certain level of working experience to fully adapt to the work, demonstrate practical experience, and form partnerships with parents. The participants confirmed that they understood the study and voluntarily agreed to participate.

The G-power 3.1.9.7 program was utilized to calculate the minimum required number of participants (Faul et al., 2009), which—considering our inclusion of 11 predictor variables, a medium effect size of 0.15 a significance level of 0.05, and a power of 0.80 for regression analysis (Kang et al., 2015)—was 123. For data collection, we distributed questionnaires to 142 nurses through an online platform (Google forms) considering a 15% drop out, and excluded two nurses who submitted incomplete responses, resulting in a sample of 140 participants.

Data collection

We obtained approval from the local university's Institutional Review Board [XXXX] in South Korea before the study and collected data between August and September 2021. All procedures performed in the study involving human participants were per the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all study participants.

This study coincided with the second wave of COVID-19 in the country, which averaged over 1000 daily infections. For safety purposes, we collected data online. We obtained recruitment notices and permission for data collection from the respective hospital managers through a nationwide nursing community and SNS (Social Network System). Thereafter, the participation announcement and the online survey (including an explanation and consent form) were posted together.

The participants received a brochure containing information about the study's objectives, methods, confidentiality and anonymity provisions, the voluntary nature of participation and withdrawal, and the risks and benefits of participating in the study. Subsequently, only those who voluntarily signed the written consent form completed a 15-min online-based self-report questionnaire. The participants were offered a small present as a token of appreciation.

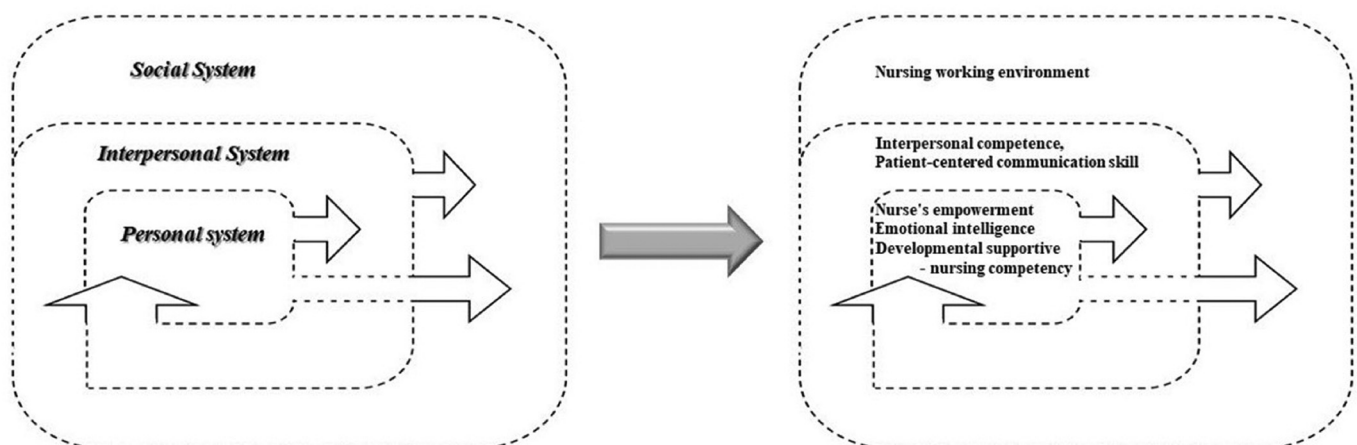


Fig. 1. Conceptual framework based on King's (1981) interacting systems theory.

Measurement tools

The nurse–parent partnership

To measure nurses' perceived level of nurse–parent partnership, we used Choi and Bang (2013) self-report tool comprised of seven domains: “cautiousness,” “sensitivity,” “reciprocity,” “professional knowledge and skill,” “collaboration,” “sharing information,” and “communication,” and 34 questions rated from 1 (not at all) to 5 (very much). The measurements included items such as “I and the parent share information about the child with each other” and “I and my parents understand each other's feelings and emotions.” Higher total scores indicate higher levels of partnership. Choi and Bang (2013) reported a Cronbach's α of 0.96. Here, it was 0.94.

Empowerment

We used the empowerment scale developed by Spreitzer (2015) and modified by Kim and Lee (2001) to measure empowerment. This tool consists of 12 items over four areas (competence, meaning, self-determination, and effectiveness) and scored on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much). The measurements included items such as “I am confident in my job abilities” and “my work is meaningful to me.” A higher score indicates a higher level of empowerment. In Kim and Lee (2001)'s study, Cronbach's α was 0.89, whereas here it was 0.87.

Emotional intelligence

We used the emotional intelligence scale developed by Wong and Law (2002) and modified by Lim (2004). This tool consists of 16 items encompassing four areas (competence, meaning, self-determination, and effectiveness) and scored on a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). The measurements included items such as “I am good at observing other people's emotions” and “I am sensitive to the feelings of others.” A higher score indicates a higher level of emotional intelligence. In Wong and Law's study, Cronbach's α was 0.87. In this study it was 0.91.

Developmental supportive nursing competency

We used the developmental supportive nursing competency scale developed by Kim and Shin (2016) comprising 19 items with four subscales. This tool consists of 19 items, with critical thinking and interaction in the knowledge area, professional development and parental support in the attitude area, and environmental support in the technology area. The measurements included items such as “I share information with fellow nurses and doctors to support the development of premature babies.” A higher score indicates a higher level of developmental supportive nursing competency. In Kim and Shin (2016) study, Cronbach's α was 0.83, while here it was 0.89.

Interpersonal competence

We used the K-ICQ, which verified the validity of the Interpersonal Competence Questionnaire (ICQ) developed by Buhrmester et al. (1988) and translated into Korean by Han and Lee (2010). This tool consists of 31 items measured on a 5-point Likert scale. The measurements included items such as “Are you good at leading conversations with new people you want to know?” Higher total scores indicate higher levels of interpersonal competence. Buhrmester et al. (1988) reported a Cronbach's α of 0.83, whereas Han and Lee (2010) reported a Cronbach's α of 0.84. In this study, it was 0.92.

Patient-centered communication skills

We used Yang (2013) therapeutic communication performance level tool for ICU nurses, which was developed based on the work of Slatore et al. (2012) and modified by Park and Oh (2018) to measure the nurses' level of subject-centered communication competency. This tool consists of 19 items: four items in the biopsychosocial perspective area, seven items in the patient area, three items in the distribution area of authority and responsibility, and five items in the therapeutic alliance area. The measurements included items such as “I also talk to unconscious patients and practice nursing.” The items are scored on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much). A higher score indicates a higher level of empowerment. In Yang (2013) study, Cronbach's α was 0.87. Here it was 0.91.

Nursing work environment

We used nursing work environment measurement tools developed by Park & Kang (2015) to fit the domestic nurse working environment. This tool is composed of four sub-domains, institutional support policy, managerial leadership, nursing work base, and relationships with colleagues, and includes 30 items measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (Strongly agree). The measurements included items such as “The head nurse in our ward listens to the needs of the nurses.” A high score of 5 suggests that one perceives their work environment positively. In Park & Kang (2015)'s study, Cronbach's α was 0.92. Here it was 0.94.

Statistical analysis

We analyzed the data using SPSS Statistics (version 26.0; IBM Corp., Armonk, NY) and verified it at a statistical significance level of 5%. We identified partnership level differences depending on other variables via independent *t*-tests and one-way analysis. We analyzed the correlations among the main variables using Pearson's correlation coefficient and determined the factors that affect partnership via multiple regression analysis.

Results

Participant characteristics

Table 1 shows the general characteristics of the participants. The average age of the pediatric nurses was 32.3 years (standard deviation [SD] = 5.3). Most (134 [95.7%]) were women, more than half (91 [65.0%]) were unmarried, and 103 (73.6%) did not have children. 114 (81.4%) were university graduates and 90 (64.3%) had no religious affiliation. One hundred four (74.3%) of the nurses were working at the provincial region level, followed by 36 (25.7%) working at the metropolitan level. The average total working period was 97.3 months (SD = 68.8), and the average working period in NICU was 62.6 months (SD = 52.0) ranging from 2 years to 14 years 9 months.

NICU nurse–parent partnerships according to general characteristics

We found significant differences in nurse–parent partnerships according to participants' age ($F = 4.42, p = 0.04$) and gender ($t = 5.12, p = 0.03$). Those over 30 had lower partnerships compared to those younger than 30 and female nurses had higher partnerships than male nurses. However, no significant differences were found according to marital status, religion, or education level (Table 2).

Descriptive statistics for measured variables

The participants' degree of partnership with parents was 3.81 ± 0.51 (5-point Likert scale), whereas empowerment was 3.65 ± 0.57 (5-point

Table 1
General characteristics (N = 140).

General Characteristics	n (%)	Mean (SD)
Age (years)		32.3(5.3)
<30	64 (45.7)	
≥30	76 (54.3)	
Gender		
Male	6 (4.3)	
Female	134 (95.7)	
Marital status		
Single	91 (65.0)	
Married	49 (35.0)	
Children		
Yes	37 (26.4)	
No	103 (73.6)	
Final educational background		
Three-year nursing college	14 (10.0)	
Four-year nursing college	114 (81.4)	
Graduate school or higher	12 (8.6)	
Religion		
Yes	50 (35.7)	
No	90 (64.3)	
Position		
Responsible nurse	14 (10.0)	
General nurse	126 (90.0)	
Working area		
Outside the metropolitan area	104 (74.3)	
Seoul, Gyeonggi Province.	36 (25.7)	
Clinical working period (months)		97.3(68.8)
<35	30 (21.4)	
36–71	48 (34.3)	
≥72	62 (44.3)	
Working period in the neonatal intensive care unit (months)		62.6(52.0)
12–35	30 (21.4)	
36–71	48 (34.3)	
≥72	62 (44.3)	

Table 2
Nurse-parent partnership according to general characteristics (N = 140).

General Characteristics	Mean ± SD	t / F	p-value
Age (years)			
<30	3.91 ± 0.52	4.42	0.04
≥30	3.73 ± 0.49		
Gender			
Male	3.36 ± 0.83	5.12	0.03
Female	3.83 ± 0.48		
Marital status			
Single	3.83 ± 0.52	0.42	0.52
Married	3.77 ± 0.49		
Children			
Yes	3.76 ± 0.48	0.46	0.50
No	3.83 ± 0.52		
Final educational background			
Three-year nursing college	3.73 ± 0.49	0.83	0.44
Four-year nursing college	3.8 ± 0.51		
Graduate school or higher	3.98 ± 0.52		
Religion			
Yes	3.84 ± 0.51	0.32	0.57
No	3.79 ± 0.51		
Position			
Responsible nurse	3.65 ± 0.56	1.52	0.22
General nurse	3.83 ± 0.5		
Working area			
Outside the metropolitan area	3.82 ± 0.51	0.26	0.61
Seoul, Gyeonggi Province	3.77 ± 0.49		
Clinical working period (months)			
<35	3.9 ± 0.48	2.08	0.13
36–71	3.69 ± 0.56		
≥72	3.86 ± 0.47		
Working period in the neonatal intensive care unit (months)			
12–35	3.8 ± 0.5	2.42	0.09
36–71	3.72 ± 0.52		
≥72	3.98 ± 0.48		

Table 3
Descriptive statistics for measured variables (N = 140).

Variables	Mean ± SD	Min/Max
Nurse-parent partnership (34)	3.81 ± 0.51	1–5
Empowerment (12)	3.65 ± 0.57	1–5
Emotional intelligence (16)	5.06 ± 0.73	2–7
Developmental supportive nursing competency (19)	3.13 ± 0.42	1–4
Interpersonal competence (31)	3.58 ± 0.50	1–5
Patient-centered communication skills (19)	3.71 ± 0.57	1–6
Nursing work environment (30)	3.43 ± 0.58	1–5

Likert scale). The degree of emotional intelligence was 5.06 ± 0.73 (7-point Likert scale), whereas developmental supportive care competency for preterm infants and interpersonal competence were 3.13 ± 0.42 and 3.58 ± 0.50 (5-point Likert scale), respectively. Furthermore, patient-centered communication competency and nursing working environment were 3.71 ± 0.57 (6-point Likert scale) and 3.43 ± 0.58 (5-point Likert scale), respectively (Table 3).

Correlation between nurse-parent partnership and related factors

A positive correlation existed between partnership and empowerment ($r = 0.68, p < 0.001$), developmental care competency for preterm infants ($r = 0.65, p < 0.001$), patient-centered communication competency ($r = 0.63, p < 0.001$), and emotional intelligence ($r = 0.63, p < 0.001$). There were positive relationships between nurse-parent partnership and nursing working environment ($r = 0.39, p < 0.001$) and between partnership and interpersonal competency ($r = 0.38, p < 0.001$).

Factors influencing NICU nurse-parent partnership

Through a hierarchical multiple regression analysis, we determined that NICU nurses' empowerment, emotional intelligence, developmental care competency, interpersonal competence, patient-centered communication competency, and nursing working environments significantly influenced their nurse-parent partnership development while controlling for the influence of general characteristics, which were statistically significant in affecting this partnership.

We conducted multiple regression analysis using variables that showed a significant relationship with partnership ($P < 5\%$) as independent variables through single variance analysis. We tested for multicollinearity and the independence of the residuals in the regression model. None of the correlation coefficients between the variables that influenced the nurse-parent partnership development was above 0.80.

The regression model (Model 1), including age and gender, was statistically significant ($F = 5.74, p < 0.001$), with an explanatory power of 14.5% ($\text{Adj.R}^2 = 0.120$). According to Model 1, being a woman was a significant predictor. The tolerance range of Model 1 was 0.63–0.96 and the variance inflation factor (VIF) was 1.01–1.58 (Table 4).

Model 2 introduced the main variables of this study (empowerment, emotional intelligence, developmental care competency, interpersonal competence, patient-centered communication competency, and nursing working environments). The tolerance range of Model 2 was 0.34–0.66, and the VIF (Variance inflation factor) was 1.52–2.94. There was no multicollinearity problem, and the normality and equal variance of residuals were satisfied.

After verifying the basic assumptions of the error term, the Durbin-Watson test statistic showed no autocorrelation with a value of 1.76–1.96. The tolerance limit of the multicollinearities was ≥ 0.1 and the VIF was < 10 for both models. The conditions for the error term's normality and homoscedasticity were satisfied.

As Lee (2014) stated that Standardized regression coefficients can be compared in size, and a large standardized regression coefficient means a greater influence on the dependent variable, we described the influence based on the standardized coefficient. Model 2 showed that the

strongest nurse-parent partnership factors were, in descending order of effect, empowerment ($\beta = 0.35, p < 0.001$), patient-centered communication competency ($\beta = 0.29, p = 0.001$), interpersonal competence ($\beta = -0.27, p = 0.001$), emotional intelligence ($\beta = 0.25, p < 0.01$), age ($\beta = -0.15, p < 0.01$), and gender ($\beta = 0.12, p = 0.03$). The model's explanatory power was 62.4% ($\text{Adj.R}^2 = 0.624, F = 24.02, p < 0.001$), as shown in Table 5.

Discussion

We identified the factors influencing NICU nurses' development of partnerships with parents of high-risk infants based on King (1981) interacting systems theory. We found significant differences according to nurses' age and gender. Specifically, nurses younger than 30 had higher nurse-parent partnership levels, which is consistent with the results reported in Kim (2018). Previous studies (Choi & Kim, 2014; Hong & Yang, 2015) stated that as nurses age, they become more accustomed to their working environment and their perspectives of people and patient treatments broaden. However, our study results suggest that even at a young age, factors such as nurses' dispositions, attitudes toward parents, and perceptions of family-centered nursing can have a positive effect on partnerships.

We found no significant differences in nurses' partnership development according to clinical experience, which is inconsistent with previous reports that partnerships increase as nurses gain clinical experience, which improves skills, builds confidence, and develops situational judgment and empathy (Cho, 2018a, 2018b; Kang et al., 2017). However, in the case of NICU, as partnerships in clinical settings encompasses individual reciprocity and work proficiency, even if a nurse's clinical career is short, their partnerships can vary depending on personality, will, and attitudes toward parental involvement.

The parents' mean partnership score (measured out of 5 points) was above average, suggesting that the nurses perceived parents as companions in care, despite the COVID-19 restrictions in South Korea. However, previous studies that used the same tools reported slightly higher scores, including Yoo et al. (2020), whose work was conducted in pediatric wards. Observed partnership differences may be dependent on unit type, as parents of children in ICUs have less contact with nurses than those in general wards (Cho, 2018a, 2018b). Specifically, in ICUs, the limited face-to-face contact between parents and nurses due to COVID-19 restrictions influenced the lower partnership rates. Long-term alternatives to encourage non-face-to-face parent participation, including video-based meeting systems and intact applications, are needed.

Based on King's interacting systems theory, this study revealed that age, gender, empowerment, emotional intelligence, interpersonal competence, and patient-centered communication skills were significant influencing factors of nurse-parent partnership formation. The most influential factor was nurses' empowerment, which supports Choi and Kim (2014) and Kang et al. (2017), who stated that empowerment is a significant personal factor in developing parent partnerships and that more empowered nurses have more parent interaction.

Empowerment enables nurses to realize that the nursing profession is a basis for innovative action and care (Choi & Kim, 2014; Kang et al., 2017). Through empowerment, pediatric nurses can enhance partnership formation by collaborating with other health care professionals and sharing resources and making decisions with the parents to provide individualized care. Therefore, nursing professionals are motivated by intrinsic values and must be encouraged to recognize and act on them (Kang et al., 2017). Thus, mentoring programs between nurses, leadership education, and career development that combines clinical and academic studies would be beneficial (Kang et al., 2017).

Emotional intelligence also influenced nurse-parent partnerships. This personal factor enables people to negotiate a complex healthcare environment with many interactions within a social system. Nurses need to learn to manage their emotional responses and those of others

Table 4
Correlation among the measured variables.

	Nurse-parent Partnership	Empowerment	Emotional intelligence	Developmental supportive nursing competency	Inter personal competence	Patient-centered communication skills	Nursing work environment
Empowerment	0.68(<0.001)						
Emotional intelligence	0.63(<0.001)	0.69(<0.001)					
Developmental supportive nursing competency	0.65(<0.001)	0.62(<0.001)	0.65(<0.001)				
Interpersonal competence	0.38(<0.001)	0.55(<0.001)	0.66(<0.001)	0.41(<0.001)			
Patient-centered communication skills	0.63(<0.001)	0.60(<0.001)	0.63(<0.001)	0.63(<0.001)	0.65(<0.001)		
Nursing work environment	0.39(<0.001)	0.46(<0.001)	0.39(<0.001)	0.33(<0.001)	0.50(<0.001)	0.47(<0.001)	

to care for those facing health challenges (King, 1981). Through emotional intelligence, nurses can increase a patient's psychological stability, satisfaction, and physical stability by empathizing and directly interacting with them. Moreover, emotional intelligence facilitates patient-nurse trust (Mun & Yoo, 2020).

Healthcare institutions have been requesting emotional services to help nurses provide patient-centered, quality care (Eklund et al., 2019). The ability to properly control and utilize emotions helps improve child care quality, especially when supplemented by a supportive relationship between nurses and parents. Nurses need to be able to collaborate with all health care professionals, lead the care planning of complex patients, and help shape health care policy. Programs need to emphasize the importance of emotional regulation and utilization to enhance pediatric nurses' emotional intelligence.

Another influencing factor was patient centered communication ability, an interpersonal factor, consistent with Cho (2018a, 2018b) and Griffin (2006). Communication facilitates mutuality and trust between the patient and the health care team. King (1997) stated that communication is the interchange of thoughts and opinions among individuals. In NICUs, the children cannot communicate so, it may be difficult to provide quality nursing care to children without establishing a cooperative relationship with the parents. Therefore, nurses should establish trust and partnership by understanding the needs of the infants and their parents through active communication (Choi & Bang, 2013), which plays a mutually positive role in nurse-parent partnerships (Altimier, 2015; Kim & Lee, 2021). Especially in non-face-to-face interactions, careful listening and considering one's choice of words and intonation are essential (Kim & Lee, 2021). Nurses need good communication skills as they need to work cooperatively with other healthcare staff and departments. Therefore, to promote parent-nurse partnership when face-to-face communication is not possible, text- and video-based meetings should be held.

In addition, interpersonal competence provides the ability to work effectively and harmoniously with others by understanding their emotions (Han & Lee, 2010), which is the most important factor in providing quality nursing care to patients. A multidisciplinary educational

program rooted in psychology, psychoanalysis, counseling, and education can be developed to improve nurses' interpersonal skills. A multidisciplinary educational program would equip nurses to provide individualized care (Cho, Yun & Kim, 2021; Han & Lee, 2010).

Practical measures using technological tools, interactive communication, and peer-learning opportunities can be established for peer-to-peer communication (Cho, Yun & Kim, 2021). Simulation, virtual reality, and role-playing may help new nurses apply therapeutic communication in various situations.

In this study, the nurse's personal factor was mainly found to be a significant factor. Yu (2016) found that, in order for a nurse to cooperate with parents to perform nursing, the nurse's understanding and empathic communication and emphasizing that positive tendencies to parents are the most important factor. This result suggests that even if there are difficulties in the working environment, if the nurse's inner positive disposition and interpersonal skills are satisfied, it can be positive in forming relationships with parents. In order to develop a partnership through interaction close to parents, it can be understood that the positive internal factors of the nurse themselves and the interpersonal factors interacting with others should be emphasized.

This study is meaningful in that it is the first in South Korea to investigate nurse-parent partnerships focusing only on the NICU nurse group, as in previous studies, intensive care unit, outpatient, and pediatric ward nurses were grouped together and investigated.

Practical implications

Our results suggest that personal (empowerment and emotional intelligence) and interpersonal (patient-centered communication and interpersonal competence) factors are strong determinants of NICU nurses' development of partnerships with parents of high-risk infants. This supports the development of a partnership program based on family-centered care in the pediatric field. King's theory emphasizes multidisciplinary collaboration, communication, interaction, transaction, and critical thinking. Nurses who interact with other systems will influence the health outcomes of patients/families during their hospital

Table 5
Summary of hierarchical multiple regression analysis (N = 140).

Variables	Model I					Model II				
	B	SE	Beta	t	p	B	SE	Beta	t	p
(Constant)	3.11	0.51		6.08	<0.001	0.78	0.42		1.88	0.06
Age	-0.16	0.08	-0.15	-1.93	0.06	-0.15	0.06	-0.15	-2.66	<0.01
Gender	0.46	0.20	0.18	2.29	0.02	0.29	0.13	0.12	2.18	0.03
Empowerment						0.31	0.07	0.35	4.24	<0.001
Emotional intelligence						0.18	0.06	0.25	2.84	<0.01
Developmental supportive nursing competency						0.14	0.10	0.12	1.42	0.16
Interpersonal competence						-0.27	0.08	-0.27	-3.40	0.001
Patient-centered communication skills						0.26	0.07	0.29	3.55	0.001
Nursing working environment						0.07	0.06	0.08	1.24	0.22
R2	0.145					0.651				
Adj. R2	0.120 (F = 5.74, p < 0.001)					0.624 (F = 24.02, p < 0.001)				

stay and beyond discharge, with the patient becoming their health manager. Enhancing nurses' interpersonal competence could promote nurse–parent partnerships, especially given the COVID-19 pandemic. In addition, as nurses may feel overburdened and fatigued by their workload, pediatric nurse managers and nursing organizations can also provide additional encouragement for nurses to actively promote parent partnerships.

Educational programs need to consider nurses' personal and interpersonal factors. Specifically, stress relief programs (i.e., programs targeting the individual factor) as well as educational, group counseling, and peer tutoring programs (targeting interpersonal-related factors) may reinforce connections with parents.

As partnership development is a continuous and long-term process that is necessary for children's growth and development, nurses must be trained to help parents improve their attitudes and competence to positively guide their children's health.

Limitation

These findings should be interpreted with caution. First, we used an online self-report questionnaire and the possibility of bias cannot be excluded. Second, generalizability to other cultures may be limited as all parents were from South Korea. Third, as this was a cross-sectional study, a longitudinal study investigating how NICU nurses perceive long-term partnerships is warranted. Subsequent studies should determine differences in nurses' development of partnerships with mothers versus fathers. Further research including in-depth interviews with parents is essential to determine the differences in partnership practices and how parents perceive partnerships.

Conclusion

This study confirmed that the main factors influencing nurses' development of partnerships with parents of high-risk infants were nurses' empowerment, emotional intelligence, patient-centered communication, and interpersonal competence. Thus, programs that improve these factors would enhance nurse–parent partnerships during the ongoing COVID-19 pandemic.

Authorship statement

¹ Eun Kyoung Kim: Principal investigator of this research project; provided supervision of the planning and development of the study; analyses and integration of study results; manuscript writing; and consistent feedback during manuscript revision.

² In Young Cho: Provided analyses and integration of study results; manuscript writing and revising; and consistent feedback during manuscript revision.

³ Ji Yeong Yun: Provided analyses and integration of study results; manuscript revising; and consistent feedback during manuscript revision.

⁴ Bobae Park: Provided analyses and integration of study results; manuscript revising; and consistent feedback during manuscript revision.

Funding

This research was supported by the National Research Foundation of Korea (NRF) grant funded by the Korean government (MSIT) (No. 2021R1G1A1004920).

Ethical approval

This study was approved by the Institutional Review Board (CNUH-2021-206). All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee

and the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Declaration of Competing Interest

- The authors declare no conflict of interest.
- This manuscript has not been submitted to more than one journal for simultaneous consideration.
- This manuscript has not been published previously.
- This is a complete study and is not split up into several parts to increase the quantity of submissions.
- No data have been fabricated or manipulated (including images) to support our conclusions.
- The data, text, or theories included in this manuscript is our own.
- Consent to submit has been received explicitly from all co-authors, as well as from the responsible authorities.
- Authors whose names appear on the submission have contributed sufficiently to the scientific work and therefore share collective responsibility and accountability for the results.

Acknowledgments

Not applicable.

References

- Alsop-Shields, L., & Mohay, H. (2001). John Bowlby & James Robertson: theorists, scientists and crusaders for improvements in the care of children in hospital. *Journal of Advanced Nursing*, 35(1), 50–58.
- Altimier, L. (2015). Compassionate family care framework: A new collaborative compassionate care model for NICU families and caregivers. *Newborn and Infant Nursing Reviews*, 15(1), 33–41. <https://doi.org/10.1053/j.nainr.2015.01.005>.
- Bainter, J., Fry, M., Miller, B., Miller, T., Nyberg, A., O'Dell, A., ... Vernon, L. (2020). Family presence in the NICU: Constraints and opportunities in the COVID-19 era. *Pediatric Nursing*, 46(5), 256–259.
- Bertalanffy, V. L., & Sutherland, J. (1974). General systems theory: Foundations, developments, applications. *IEEE Transactions on Systems, Man, and Cybernetics*, 6, 592.
- Bone, D. (2002). Dilemmas of emotion work in nursing under market-driven health care. *International Journal of Public Sector Management*, 15(2), 140–150. <https://doi.org/10.1108/09513550210419564>.
- Bowlby, J. M. (1973). In H. Press (Ed.), *Attachment and Loss, Vol. 2: Separation, Anxiety and Anger*. Hogarth Press.
- Bruns, D. A., & McCollum, J. A. (2002). Partnerships between mothers and professionals in the NICU: Caregiving, information exchange, and relationships. *Neonatal Network*: NN, 21(7), 15–23. <https://doi.org/10.1891/0730-0832.21.7.15>.
- Buhrmester, D., Furman, W., Wittenberg, M. T., & Reis, H. T. (1988). Five domains of interpersonal competence in peer relationships. *Journal of Personality and Social Psychology*, 55(6), 991–1008. <https://doi.org/10.1037/0022-3514.55.6.991>.
- Carnevale, F. A., Farrell, C., Cremer, R., Séguret, S., Canouï, P., Leclerc, F., ... Hubert, P. (2016). Communication in pediatric critical care: A proposal for an evidence-informed framework. *Journal of Child Health Care*, 20(1), 27–36. <https://doi.org/10.1177/1367493514540817>.
- Cho, H. J. (2018a). *Influence of communication competence and communication style on the nurse-parent Partnership in Pediatric Nurses*. Unpublished Master's thesis, Pusan: Pusan National University of Korea.
- Cho, I. Y. (2018b). *Experience of developing partnership between pediatric nurse and the parents of high risk infants in the NICU*. Unpublished Doctoral dissertation, Seoul: Korea University of Korea.
- Cho, I. Y., Yun, J. Y., & Kim, H. (2021). Factors affecting Person-Centered Care Competence for senior nursing students: Focused on King's dynamic interaction system model. *Journal of the Korea Convergence Society*, 12(8), 357–367. <https://doi.org/10.15207/JKCS.2021.12.8.357>.
- Choi, M., & Kim, J. (2014). Associated factors in pediatric nurse parent partnership. *Child Health Nursing Research*, 20(3), 176. <https://doi.org/10.4094/chnr.2014.20.3.176>.
- Choi, M. Y., & Bang, K. S. (2013). Development and testing of a pediatric nurse parent partnership scale. *Journal of Korean Academy of Nursing*, 43(2), 194–202. <https://doi.org/10.4040/jkan.2013.43.2.194>.
- Day, C. (2013). Family partnership model: Connecting and working in partnership with families. *Australian Journal of Child and Family Health Nursing*, 10(1), 4–10. [http://www.mcafhna.org.au/Portals/0/Board \(Files/Journals/AJCFHN June 2013\).pdf](http://www.mcafhna.org.au/Portals/0/Board%20Files/Journals/AJCFHN%20June%202013.pdf).
- Eklund, J. H., Holmström, I. K., Kumlin, T., Kaminsky, E., Skoglund, K., Högländer, J., & Summer Meranius, M. (2019). "Same same or different?" A review of reviews of person-centered and patient-centered care. *Patient Education and Counseling*, 102(1), 3–11. <https://doi.org/10.1016/j.pec.2018.08.029>.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160.

- Fegran, L., Fagermoen, M. S., & Helseth, S. (2008). Development of parent-nurse relationships in neonatal intensive care units - from closeness to detachment. *Journal of Advanced Nursing*, 64(4), 363–371. <https://doi.org/10.1111/j.1365-2648.2008.04777.x>.
- Garfield, C. F., Lee, Y. S., Warner-Shifflett, L., Christie, R., Jackson, K. L., & Miller, E. (2021). Maternal and paternal depression symptoms during NICU stay and transition home. *Pediatrics*, 148(2). <https://doi.org/10.1542/peds.2020-042747>.
- Griffin, T. (2006). Family-centered care in the NICU. *Journal of Perinatal and Neonatal Nursing*, 20(1), 98–102. <https://doi.org/10.1097/00005237-200601000-00029>.
- Han, N. R., & Lee, D. G. (2010). Validation of the Korean version of the interpersonal competence questionnaire in Korean college students. *The Korean Journal of Counseling and Psychotherapy*, 22(1), 137–156.
- Hong, E., & Yang, Y. -J. (2015). Factors affecting job stress of pediatric nurses: Focusing on self-efficacy, emotional labor, pediatric nurse-parent partnership. *Child Health Nursing Research*, 21(3), 236–243. <https://doi.org/10.4094/chnr.2015.21.3.236>.
- Hong, H., & Son, H. -M. (2020). Factors influencing developmental care performance among neonatal intensive care units nurses. *Child Health Nursing Research*, 26(2), 131–139. <https://doi.org/10.4094/chnr.2020.26.2.131>.
- Kang, H., Yeon, K., & Han, S. -T. (2015). A review on the use of effect size in nursing research. *Journal of Korean Academy*, 45(5), 641–649. <https://doi.org/10.4040/jkan.2015.45.5.641>.
- Kang, M. -J., Ahn, H. -Y., & Kim, E. -M. (2017). A study of pediatric Nurse's emotional labor, empowerment, pediatric nurse-caregiver partnership. *Asia-Pacific Journal of Multimedia Services Convergent with Art, Humanities, and Sociology*, 7(7), 359–367. <https://doi.org/10.14257/ajmahs.2017.07.22>.
- Kim, E., & Lee, M. (2001). A study on empowerment related factors of clinical nurses. *Journal of Korean Academy of Nursing Management*, 7(1), 145–163.
- Kim, J., & Lee, H. (2021). The influence of communication competence and self-efficacy of nurses at Children's hospitals on partnership with parents. *Journal of East-West Nursing*, 27(2), 134–142. <https://doi.org/10.14370/jewnr.2021.27.2.134>.
- Kim, J. S., & Shin, H. S. (2016). Development of the developmental support competency scale for nurses caring for preterm infants. *Journal of Korean Academy of Nursing*, 46(6), 793–803. <https://doi.org/10.4040/jkan.2016.46.6.793>.
- Kim, J. H. (2018). *Influence of pediatric nurses' perception on children's safety management and partnership with parents on children's safety management activities*. Gyeon ju University of Korea: Unpublished Master's thesis.
- King, I. M. (1997). King's theory of goal attainment in practice. *Nursing Science Quarterly*, 10(4), 180–185.
- King, I. M. (1971). *Toward a theory for nursing: General concepts of human behavior*. New Jersey: John Wiley & Sons Publishing.
- King, I. M. (1981). *A theory for nursing: Systems, concepts, process*. New York: Wiley.
- Lam, J., Spence, K., & Halliday, R. (2007). Parents' perception of nursing support in the neonatal intensive care unit (NICU). *Neonatal, Paediatric and Child Health Nursing*, 10(3), 19–25.
- Lee, I. H. (2014). *Easy flow regression analysis*. Seoul: Hannarae publishing, 128–129.
- Lee, P. (2007). What does partnership in care mean for children's nurses? *Journal of Clinical Nursing*, 16(3), 518–526. <https://doi.org/10.1111/j.1365-2702.2006.01591.x>.
- Lim, J. S. (2004). *A study on the relationship between employees' emotional intelligence and employee attitudes and behaviors: Focused on the moderating effect of emotional labor and organizational personality*. Unpublished Master's thesis: Seoul: Korea University of Korea.
- Maria, A., Litch, J. A., Stepanchak, M., Sarin, E., Wadhwa, R., & Kumar, H. (2021). Assessment of feasibility and acceptability of family-centered care implemented at a neonatal intensive care unit in India. *BMC Pediatrics*, 21(1), 1–12. <https://doi.org/10.1186/s12887-021-02644-w>.
- McQueen, A. C. H. (2004). Emotional intelligence in nursing work. *Journal of Advanced Nursing*, 47(1), 101–108. <https://doi.org/10.1111/j.1365-2648.2004.03069.x>.
- Mun, H. M., & Yoo, M. S. (2020). Influence of self-efficacy, emotional intelligence, and nurse-parent partnership on the nursing competency of pediatric nurses. *Journal of Korean Academic Society of Home Health Care Nursing*, 27(2), 146–155. <https://doi.org/10.22705/jkashcn.2020.27.2.146>.
- Park, S. H., & Kang, J. Y. (2015). Development and psychometric evaluation of the Korean Nursing Work Environment Scale. *Journal of Korean Critical Care Nursing*, 8(1), 50–61.
- Park, Y. -S., & Oh, E. G. (2018). Factors related to intensive care unit nurses' patient centered communication competency. *Journal of Korean Critical Care Nursing*, 11(2), 51–62.
- Peyrovi, H., Mosayebi, Z., Mohammad-Doost, F., Chehrzad, M. M., & Mehran, A. (2016). The effect of empowerment program on "perceived readiness for discharge" of mothers of premature infants. *Journal of Maternal-Fetal and Neonatal Medicine*, 29(5), 752–757. <https://doi.org/10.3109/14767058.2015.1017461>.
- Reis, M. D., Rempel, G. R., Scott, S. D., Brady-Fryer, B. A., & Van Aerde, J. (2010). Developing nurse/parent relationships in the NICU through negotiated partnership. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 39(6), 675–683. <https://doi.org/10.1111/j.1552-6909.2010.01189.x>.
- Roets, L., Rowe-Rowe, N., & Nel, R. (2012). Family-centred care in the paediatric intensive care unit. *Journal of Nursing Management*, 20(5), 624–630. <https://doi.org/10.1111/j.1365-2834.2012.01365.x>.
- Shanta, L. L., & Connolly, M. (2013). Using King's interacting systems theory to link emotional intelligence and nursing practice. *Journal of Professional Nursing*, 29(3), 174–180. <https://doi.org/10.1016/j.profnurs.2012.04.023>.
- Slatore, C. G., Hansen, L., Ganzini, L., Press, N., Osborne, M. L., Chesnut, M., & Mularski, R. A. (2012). Communication by nurses in the intensive care unit: Qualitative analysis of domains of patient-centered care. *American Journal of Critical Care*, 21(6), 410–418.
- Spreitzer, G. M. (2015). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 171–179. https://doi.org/10.1007/978-1-4471-4953-8_17.
- Trajkovski, S., Schmied, V., Vickers, M., & Jackson, D. (2012). Neonatal nurses' perspectives of family-centred care: A qualitative study. *Journal of Clinical Nursing*, 21(17–18), 2477–2487. <https://doi.org/10.1111/j.1365-2702.2012.04138.x>.
- Trajkovski, S., Schmied, V., Vickers, M. H., & Jackson, D. (2016). Experiences of neonatal nurses and parents working collaboratively to enhance family centred care: The destiny phase of an appreciative inquiry project. *Collegian*, 23(3), 265–273. <https://doi.org/10.1016/j.colegn.2015.05.004>.
- Umberger, E., Canvasser, J., & Hall, S. L. (2018). Enhancing NICU parent engagement and empowerment. *Seminars in Pediatric Surgery*, 27(1), 19–24. <https://doi.org/10.1053/j.sempedsurg.2017.11.004>.
- Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly*, 13(3), 97–128. <https://doi.org/10.4324/9781315250601-10>.
- Woo, D., Yu, H., Kim, H. J., Choi, M., & Kim, D. H. (2021). Untact visit service development based on an application reflecting the circumstances during covid-19: Focusing on utilization in the pediatric intensive care units. *Journal of Korean Academy of Nursing*, 51(5), 573–584. <https://doi.org/10.4040/jkan.21143>.
- Yang, Y. L. (2013). *Therapeutic communication among nurses in intensive care unit unpublished doctoral dissertation*. Seoul, Korea: Yonsei University.
- Yoo, S. Y., Cho, H., Kim, Y. Y., & Park, J. H. (2020). 32Levels of partnership between nurses and parents of hospitalized children and the quality of pediatric nursing care as perceived by nurses. *Child Health Nursing Research*, 26(1), 64–71. <https://doi.org/10.4094/chnr.2020.26.1.64>.
- Yu, M. (2016). Stress coping styles and nurse-parents partnership. *Korean Journal of Stress Research*, 24, 47–56. <https://doi.org/10.17547/kjsr.2016.24.1.47>.