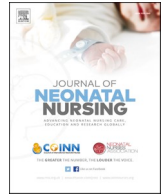




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Exploring Indonesian nurses' perspectives on preparing parents of preterm infants for hospital discharge: A qualitative study

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ABSTRACT

Objective: This study aimed to explore Indonesian nurses' perspectives about their discharge preparation processes to enhance the discharge readiness of parents of preterm infants in the NICU.

Methods: A descriptive qualitative study with in-depth interview was used in this study. Eight purposively sampled NICU nurses were involved; all interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis.

Results: Three themes emerged that described nurses' perceptions related to their own discharge preparation process for parents of preterm infants: (1) diversity in discharge preparation; (2) Mother-Infant interaction during daily cares; and (3) Internal and external barrier to discharge preparation.

Conclusions: Nurses prepared parents of preterm infants for hospital discharge by providing health education, support systems and empowering mothers in their infant's care until they attained independence in caring for their baby prior to baby's discharge from the hospital. A multidisciplinary team with clear hospital policies and guidelines to follow along with improved nursing competence in the education and discharge process for parents of NICU babies are necessary to ensure the successful transition from the hospital NICU to home.

Nurses prepared parents of preterm infants for hospital discharge by providing health education, support systems, and empowering mothers in their infant's care until they attained independence in caring for their baby prior to baby's discharge from the hospital NICU. A multidisciplinary team with clear hospital policies and guidelines to follow along with improved nursing competence are needed for successful implementation of effective discharge planning.

1. Introduction

2015, low birth weight (LBW) infants globally accounted for 14.6% of all newborns and half of these were born in Asia (UNICEF, 2019). Two-thirds of LBW infants are premature and Indonesia ranks fifth out of ten countries in the world with the highest preterm births (World Health Organization, 2018). LBW infants, especially in preterm infants, require specialized medical care and are often treated in the Neonatal Intensive Care Unit (NICU) due to physiological immaturity (Lee et al., 2019; Medina et al., 2018). Health problems in these infants often continue

after hospital discharge, placing them at risk for returning through the emergency department increasing their risk for hospital readmission in the first year of life (Blackburn, 1995; Kuzniewicz et al., 2013). Common reasons for readmission include jaundice and feeding problems (Kuzniewicz et al., 2013). These infants also have greater risk of stunted growth, as well as later health issues such as diabetes and cardiovascular disease (UNICEF, 2019), neurodevelopmental problems (Lin et al., 2020) and developmental issues such as cognitive delay, language, learning, and school difficulties (Kuzniewicz et al., 2013; McGowan et al., 2019; UNICEF, 2019). These problems in preterm infants can

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result in stress for their parents (Blackburn, 1995). Key factors impacting the likelihood of infants having further issues post-discharge is family readiness for discharge, poor discharge planning and a lack of necessary education from the time of baby's admission (Aloysius et al., 2018; Bapat et al., 2016).

Discharge planning is an essential part of patient care in acute hospital wards, especially in the NICU (Graham et al., 2013). Effective discharge planning aims to improve patient outcomes, reduce costs of care, decrease risks of readmission, and promote community-based health management (Weiss et al., 2015). Poor discharge preparation may result in poor outcomes for preterm infants. A mother's lack of knowledge on topics such as cue recognition, feeding skills, and potential long-term issues can lead to ongoing medical problems post hospital discharge (Smith et al., 2009). Preparation for discharge is the responsibility of all multidisciplinary hospital staff, but nurses have the primary responsibility for discharge teaching because they are closely involved in an infant's care throughout the entire hospital stay (Graham et al., 2013; Weiss et al., 2017). Nurses have a responsibility to prepare family members, or other caregivers, with the knowledge and skills necessary to care for their infant in the hospital and as the baby transitions from hospital to home (Weiss et al., 2017).

In The Kingdom of Saudi Arabia, a previous systematic review on NICU discharge planning found that nurses lacked the comprehensive knowledge and competencies to effectively implement discharge planning (Reshidi et al., 2016). A qualitative study in Iran, that included 16 NICU nurses and physicians, showed that the NICU staff had knowledge related to infants' needs, but were unable to facilitate a smooth transition from NICU to home. Their study also described factors impacting infants' poor transitions from NICU to home, which included: inadequate equipment, shortages of staff, and uncoordinated discharge programs (Valizadeh et al., 2013). Indonesian neonatal services today are supported by the Ministry of Health of the Republic of Indonesia's regulatory number 10 of 2015, which contains educational services for parents as one component of neonatal services. However, there are currently no guidelines for nurses to effectively implement parent education (Indonesian Ministry of Health, 2015). Additionally, Indonesian neonatal services have several barriers as they attempt to provide optimal neonatal services, some of which include: a shortage of nursing staff causing high nurse to patient ratios as well as a lack of competence in intensive care nurses (Gunawan, 2016). Hence, this study aimed to explore Indonesian neonatal nurses' perspectives about the discharge preparation processes in order to enhance discharge readiness for parents of preterm and critically-ill infants.

2. Materials and method

2.1. Design

This study was a descriptive qualitative study using in-depth interviews to explore, analyze and describe experiences of neonatal nurses (Matua and Wal, 2015). This approach provided a richness, breadth, and depth of data necessary to build a comprehensive understanding about experiences of Indonesian neonatal nurses regarding the discharge processes in order to enhance discharge readiness for parents of preterm infants.

2.2. Participants and setting

This study was undertaken in two hospitals that provided neonatal care services. Hospital 1 was a large tertiary national referral hospital in South Sulawesi, Eastern Indonesia that had the largest NICU facility in the region. Hospital 2 was a large teaching hospital in South Sulawesi that had a special care nursery (SCN). Both hospitals had similar NICU practices including Kangaroo Mother Care (KMC), unlimited visitation for parents, and parental involvement that was encouraged.

Purposive sampling was conducted to identify suitable participants,

namely nurses who had worked in the NICU for at least three years, held a bachelor's degree in nursing, and had obtained a NICU nurse certification (a 3-month long NICU training program). There were nine potential participants who met the inclusion criteria, five from Hospital 1 and four from Hospital 2, as well as another eight that volunteered to participate and were included in the study. Hospital 1 had 33 nurses, 15 of which were bachelor prepared, 14 NICU certified, and all 33 had worked in the NICU for at least three years. Hospital 2 had a total of 12 nurses, all of which were bachelor prepared, 4 NICU certified, and 5 had worked in the NICU for at least three years.

2.3. Data collection

Open-ended questions developed by the researchers were used in this study during one-to-one in-depth interviews. Data collection was carried out between June 2018 and October 2018 by the first author, a PhD candidate trained in conducting qualitative research and interviews. An interview guide with key open-ended questions along with probing questions that related to a participant's response was utilized to help ensure that the research aim was addressed. The following interview questions focused on exploring NICU nurses' experiences regarding: the discharge planning process for parents of LBW infants, the health care resources provided to families, the discharge readiness assessment, and any challenges or barriers encountered when preparing parents for their babies' hospital discharge.

After explaining the study objectives, process, confidentiality and the right to withdraw at any time, participants were interviewed in a private area of the NICU. Researchers had established trusting relationships with participants prior to the beginning of the study. Interviews were conducted in Bahasa (Indonesian language) and recorded using a smartphone application for a duration of 30–60 min. Field notes were made to document existing conditions that existed during and immediately after the interview. Repeated interviews were conducted with three participants to complete missing data. Participants were recruited and interviewed until no new information emerged. Data saturation was achieved after eight interviews.

2.4. Ethical consideration

Ethics review and approval was obtained from both hospital institutional review boards. Informed verbal and written consents were obtained from participants prior to each interview. De-identified audio files, transcripts, and analysis were securely stored as per ethics guidelines and were only used for reporting research outcomes. Participants were given a numerical code that was used when reporting data to ensure that participants were unidentifiable.

2.5. Data analysis

Interviews were transcribed verbatim in Bahasa Indonesia for analysis. The meaning statements, coding, categories and themes were translated into English and back translated into Bahasa Indonesia to ensure that the initial meanings were retained. Transcripts were entered into Open Code 3.6 software for qualitative data management and read and re-read multiple times to construct a general sense and reflection of the meanings behind nurses' experiences. Thematic analysis was used to analyze the data (Clarke and Braun, 2017). Meaningful statements relevant to the research aim were segmented into codes, and then similar codes were collated into like meaningful groups and patterns. Initial sub-themes were generated from the same-meaning groups and further clustered into themes. All data analysis was checked and discussed among all researchers to ensure that the analysis reflected intent of the meanings evident in the dataset. Team members discussed each different interpretation until consensus was reached (Clarke and Braun, 2017).

Trustworthiness was used to establish credibility, dependability, transferability and confirmability (Holloway and Wheeler, 2010).

Credibility was achieved by two nurses who read the thematic analysis, provided feedback and offered corrections to ensure the accuracy of interpretations. The provision of detailed, clear, systematic and reliable descriptions of the findings ensured that transferability had been achieved. Documentation of the research process, including audio-recordings and field notes, was used to ensure dependability. In addition, the research team debriefed to discuss data analysis, interpret and report findings until a consensus was reached by all members of the research team.

3. Result

A total of eight nurses, aged 27–40 years old, participated in this study. The majority were in Associate Nurse positions in the NICU ($n = 5$), three were in a primary nurse position ($n = 3$), most had worked in the NICU for over five years ($n = 5$), and there was no participant attrition. The demographic characteristics of participants are described in Table 1. Analysis revealed three themes: (1) diversity in discharge preparation; (2) engaging mothers in the daily care of babies as well as the discharge preparation; and (3) barriers and recommendations in discharge preparation. Sub-themes were also identified that further elucidated the experiences of nurses for enhancing mothers' readiness to care for their LBW baby during the hospital stay and before hospital discharge. These themes and sub-themes are presented in Table 2.

3.1. Diversity in discharge preparation

All participants agreed that a mother's readiness was important prior to discharging a LBW baby from hospital to home. Nurses prepared Mothers were educated by NICU nurses within the NICU setting and throughout the discharge process but there was diversity about when the discharge planning should begin. Such diversity among nurses was not only about discharge planning, but also around their assessment of a mother's readiness for their baby's discharge to home.

3.1.1. Different perceptions about discharge preparation

All participants in this study voiced different perceptions about when to start the hospital discharge preparations. Two (2) nurses stated this should start at the beginning (on admission), two (2) suggested it should start when the baby was physiologically stable, one (1) felt the process should begin when the baby was transferred to level 2 A (NICU where the baby needs some respiratory support, has signs of infection, or requires partial parenteral nutrition), three (3) believed the preparation for discharge should start only when there was a directive (or physician/ NNP order) to discharge the baby, and one (1) participant said that they began discharge planning on the first day that the baby had steady

weight gain of about 20–30 g/day.

"During this time, I started discharge planning when the baby has a steady weight gain which is around 20–30 g/day. We usually start it on the first day of the baby's weight gain, we have started to teach it slowly." (Nurse 5)

Another nurse indicated that hospital discharge preparations were commenced two to three days before hospital discharge, after there was a directive (order) from the physician.

"... during this time, if the responsible doctor visited and checked the baby's condition and said the baby can be planned to go home, which was about 2-3 days before hospital discharge, then that's where we start preparation for the hospital discharge." (Nurse 3)

3.1.2. Diversity of mothers' readiness assessment

There was also diversity in the assessment of mothers' readiness across participants. They verbalized different perceptions about how to assess the mother of a LBW infant on their readiness to take their baby home and care for their baby without nurses and other supports. Mothers were assessed as ready if they were: independent in feeding skills (breastfeeding, cup feeding and timed feeding), had been independent when performing KMC, were motivated to participate in care, and had developed effective mother-baby interactions. Discharge readiness assessments were performed subjectively by the NICU nurses. One discharge readiness parameter that was measured according to hospital policy and used by physicians was that of a KMC discharge score. One participant stated that daily observations were used to assess a mother's readiness for discharge.

"... when the baby is treated at level 2A, we have established the mother's independence. We have taught about baby's diaper changes independently, then we evaluated whether the mother is able to breastfeed her baby, whether the baby's weight is increasing, or the baby has adequate drinking. We judge mothers based on this observation. We also usually convey to the doctor-in-charge our observations." (Nurse 1)

Another nurse explained that they assessed parental readiness for hospital discharge by subjective observations:

"We conduct observations subjectively for a day or two days before the hospital discharge, we observe how the mother cares for the baby. They can be discharged if they perform the baby care as we taught." (Nurse 4)

One interesting finding that emerged when assessing a baby's readiness for discharge was that all nurses agreed that a baby's physiological stability and positive weight gain for three consecutive days were indications for discharge.

Table 1
Participants' demographic data.

Participant	Age (Years)	Education level	Hospital work experience (Years)	NICU experience (Years)	Current position	Additional Training
P1	32	Bachelor of Nursing	9	9	Associate nurse	Training of Trainer Neonatal Stable, NICU Update
P2	32	Bachelor of Nursing	9	9	Primary nurse	PICC (Peripherally Inserted Central Catheter) Training Course, Pain Management
P3	31	Bachelor of Nursing	6	6	Associate nurse	Maternal and Neonatal Resuscitation, Obstetric and Neonatal Emergency,
P4	27	Bachelor of Nursing	5	5	Associate nurse	Neonatal Resuscitation, Neonatal with Surgical Case, Obstetric Neonatal Emergency Comprehensive Services
P5	34	Bachelor of Nursing	8	5	Primary nurse	Neonatal Resuscitation
P6	28	Bachelor of Nursing	5	5	Associate nurse	Neonatal Resuscitation, Kangaroo Mother Care (KMC)
P7	40	Bachelor of Nursing	17	8	Primary nurse	Kangaroo Mother Care (KMC)
P8	28	Bachelor of Nursing	5	5	Associate nurse	Neonatal Resuscitation, NICU Update

Table 2
Themes and sub-themes.

No	Themes	Subthemes	Unit of Meaning	Example of meaning statement
1	Diversity in discharge preparation	Different perception about discharge preparation	Different time to start discharge preparation, lack of knowledge in discharge planning	When the doctor said that the baby was planned to go home, After that We did discharge preparation three or two days before the baby hospital discharge (Nurse 2)
		Diversity of mothers readiness assessment	Feeding skill assessment, independence in baby care assessment, mother-infant bonding assessment, mother motivation, baby physiologic condition	We assess the readiness of the mother to baby care and mother-infant bonding by our daily observation in subjectively. (Nurse 6)
2	Mother-Infant interaction in daily care	Education about daily care after the baby is stabilized	begun after the physiologic baby in stable, The baby physical need education, education about, KMC shorter education about home care in a day hospital discharge	We taught about feeding such as breastfeeding, cup feeding and how to mix the formula milk when using formula milk (Nurse 4)
			family involved in care, family independence before hospital discharge	We provide education and made the mother independent to did it. For example about breastfeeding, first, we educated about proper breastfeeding, after that the mother could breastfeed independently and weighing the baby after feed according to the baby's feeding schedule (Nurse 5)
		Empowering mothers in care		
		support and motivation for caring the baby	facilitated family support, motivation for involved infant care, mother-infant interaction support, support for involved in care	We supported and motivated the mothers to be close to their babies. For example, we encourage the mother to caress or communicate with the baby, so the baby felt and heard. In that way, we hope the mother accept the baby

Table 2 (continued)

No	Themes	Subthemes	Unit of Meaning	Example of meaning statement
3	Internal and external barrier for discharge preparation	Lack of contribution in daily baby care	frightening to involved baby care, mothers unreadiness for hospital discharge, lack of mother cooperative	condition (Nurse 4) Sometimes we had trouble when the mother was not cooperative or the mother was spoil. The rare visiting the baby and came only to brought breastmilk then back again to their home. We had no chance to educated them (Nurse 3)
		Lack of discharge preparation policies	Spoken education, direct demonstration as one way for education, diversity education material based on nurse creativity	we had no standard of health education for parents, so sometimes we conveyed it in an unstructured and sometimes there was missing material. We also didn't plan it and just according to the needs of the moment (Nurse 5)
		Lack of community continuity care implementation	infant care resume before hospital discharge, lack of referral care system, lack of mothers support after discharge,	There are no direct continuity care referrals from the hospital to the primary health facility, but we provide the discharge notes that they could use when visiting other health facilities (Nurse 1)
		Nurse recommendation based on barrier of discharge preparation	enhanced nurse competence, providing mothers support after discharge, providing discharge planning guidelines for neonatal services.	Average of us had no advance competencies in neonatal care, so we need to have been given advance training (Nurse 8)

"Infants may be discharged if they have a weight gain of 20-30 g/day, a healthy baby not using a breathing apparatus, the down score is zero (referring to the assessment of neonatal respiratory distress from zero to ten) and does not need an oral gastric tube for feeding." (Nurse 2)

3.2. Mother-infant interactions in daily care

Health services to prepare for hospital discharge focused on the baby's current needs. Care provided by nurses consisted of educating mothers, encouraging mothers' engagement and participation, and providing support and motivation to mothers related to their baby's daily care.

3.2.1. Education about daily care after the baby is physiologically stable

Education for parents focusing on the disease and/or current treatment and management was usually initiated in the early days after admission and was a main component of preparing mothers for their baby's hospital discharge. Education about the baby's daily care commenced after the baby was physiologically stable and/or was transferred to a level 2 A room. Nurses provided mothers with education about the baby's daily cares such as changing diapers, feeding (breast-feeding, formula feeding and cup feeding), and KMC implementation. One participant identified that in her area, education started after the baby became physiologically stable.

"We have not yet provided education to mothers of LBW in level 3A room about diaper changing. When the baby is stable and has no breathing equipment installed, we start educating the mother of the LBW baby. Regularly, they begin to confidently change diapers around 2–3 days before going home." (Nurse 6)

Nurses provided several 1:1 moments of instruction or short education sessions to mothers of LBW babies on the day of hospital discharge; however, findings revealed that the actual instructions and educational sessions provided differed between nurses. One nurse participant reportedly gave instructions about follow-up schedules, baby's medications, and suggested the mother purchase equipment to assess body temperature at home.

"I advise them to buy temperature equipment for babies, so if the baby has a fever, they can measure it. I suggest not to forget the baby's follow-up; the follow-up schedule is written on the baby's medicine regime, I suggest paying attention to the medicine, finish it before following up." (Nurse 7)

Some nurses stated that they gave education related to specific conditions and/or medical equipment, such as oxygen support and/or an oral gastric tube (OGT) that a baby might be utilizing at home.

"For example, babies who use OGT when returning home, we give education to come to the hospital every three days to replace the tube and check condition of the baby. I teach about how to give breastmilk through the OGT, how to monitor it and how to sterilize the device." (Nurse 4)

3.2.2. Empowering mothers in care

The findings of this study revealed that nurses began providing opportunities for mothers of LBW babies to be involved in daily baby cares only after the baby was physiologically stable. Nurses also encouraged mothers to independently care for their babies after providing education about changing diapers, feeding the baby appropriately and according to a feeding schedule (breastfeeding, formula feeding and cup feeding), and providing KMC competently.

"Most of us start involve mothers in room 2A, for example, in giving milk through OGT, then if the baby is healthier the baby will get milk through cup feeding or breastfeeding according to schedule. We make mothers able to independently care for their babies. We provide education on how to implement KMC such as wearing KMC fabric, how independent she is in getting milk through OGT or cup feeding." (Nurse 2).

Another nurse suggested that mothers stay overnight in the hospital if they have not been present, engaged, and/or participative in their baby's daily cares.

"Sometimes the baby sucks well, but the mother is lazy to breastfeed, so we ask the mother to spend the night at the hospital, because usually there are mothers who like to go home. So, we ask the mother to stay one or two nights so we can assess cup feeding, breastfeeding actively, intensive visiting of the baby in the NICU room and staying all day in hospital." (Nurse 3)

3.2.3. Support and motivation for caring for the baby

All nurses provided support and motivation for mothers if their baby was in critical condition suggesting that they have physical contact with their baby. Once the baby becomes physiologically stable and throughout the mothers' involvement in their baby's daily cares, nurses consistently provide psychological support and encouragement to motivate them in caring for their baby through the use of narrating and showing pictures of previous babies.

"We still give motivation. We give an example of a previous baby that we have also treated, a baby similar to the mother's baby, babies with less weight but babies who remained healthy after discharge from hospital." (Nurse 1)

Nurse participants also stated that they involved other family members [for example, fathers or their mothers (Grandma)] in daily baby care to provide mothers with additional support and motivation:

"We also ask the family to help to motivate the baby's mother. We at NICU have rules that do not allow other family members to enter, but for special situations we allow parents of mothers to enter the NICU room to support a mother's motivation, we permit at least one person." (Nurse 6)

3.3. Internal and external barriers for discharge preparation

NICU nurses reported facing several barriers in providing mothers of LBW infants the optimal preparation for a baby's hospital discharge. Reported barriers, not only from the mothers, but also from policy and/or hospital/government management included the mother's physiological response and demeanor. Barriers from policy or management included having limited educational content and equipment such as materials, leaflets, appropriate demonstration tools, guidelines, and not having community resources or services for providing continuity of care from the hospital NICU to the primary health care setting.

3.3.1. Lack of contribution to baby daily care

From the mother's side, a lack of participation that contributes to their baby's daily care was revealed as a barrier by the nurse participants. The nurses stated that they had difficulty enhancing a mother's readiness to care for their infant or take their baby home from the NICU, which delayed discharges, especially if the mother was frightened to interact and care for their baby, if they were not cooperative in following the nurses' instructions, if they were not present in the NICU to care for their baby, and/or if they refused to care for their baby while in the NICU. One participant stated that sometimes mothers were not ready to take their baby home because they were afraid to care for their baby at home.

"They said I can't bring my baby home yet, even though the child is stable. The mother wants to go home if her baby weighs 2,500 g. We continue to teach the mothers and give support. It usually takes a long time to discharge from the hospital to home, because they felt scared. They are afraid if their children are congested at home or because they are too small." (Nurse 8)

Another participant stated that

"Sometimes mothers of babies test our patience. We see they are skilled and if they take certain actions, they are doing it right. But they refuse to care for their babies out of fear, sometimes they tremble. For example, when we request them to breastfeed the baby, they say they are afraid their baby will choke. They have high anxiety" (Nurse 7)

3.3.2. Lack of discharge preparation policies

This study revealed that hospitals lacked the standards and policies about discharge planning and preparation. Nurses generally prepared mothers for the discharge of their LBW baby by individualizing

discharge materials and activities according to patients' and families' current needs.

"We don't have education planning for parents. We usually just provide education and write proof of the education after giving them education. Education is given according to their needs, for example a friend from the night shift handed over to me on the morning shift that a mother had not been able to breastfeed her baby so we who were on the morning shift would provide education about it, only to that extent." (Nurse 6)

All nurse participants indicated that they lacked any appropriate education materials, guidelines, and/or equipment in order to provide adequate education to NICU mothers. Hence, the nurses provided education verbally and through direct 1:1 demonstrations, which increased the diversity of education, technology and materials provided from one nurse to another.

"Each of us has a different way to do education. we deliver to mothers with different material too." (Nurse 1)

Participants stated that they always used verbal methods because there was a lack of appropriate educational tools and materials; however, sometimes they were able to provide pictures and videos from the internet to enhance the education.

"We use verbal education, then we practice directly, we rarely use pamphlets. Immediately, demonstrations directly and spoken." (Nurse 5)

3.3.3. Lack of continuity of care

Direct continuity of care from the hospital NICU to the primary health care team had not been implemented in the areas of the study. Nurses stated that mothers were given discharge notes containing their babies' treatment and conditions before hospital discharge and these could be used to provide 'indirect' continuity of care. Mothers of LBW infants could take these notes to their local hospital clinic, primary health or private health care providers if something happened or just for follow-up. One participant stated that mothers were directed to seek follow-up in the same hospital where their baby was in the NICU, but mothers were still given a medical report.

"We usually direct the baby's mother to follow-up at this hospital, not to the primary health centre. However, if the mother wants to seek immunizations at the community health centre, then we provide a report that can later be read by the medical staff in community health centre." (Nurse 8)

Another nurse identified that

"Sometimes there is continuity of care coordination with primary health care that cooperates with our hospital, usually we see it but if there was no collaboration there is no continuity of care coordination." (Nurse 3)

3.3.4. Barriers to discharge preparation

Although nurses were faced with barriers in optimizing the discharge process for NICU parents, nurses still had hope that they would be able to improve the quality of discharge planning and preparation in their hospitals. They proposed several recommendations to mitigate these barriers such as: increasing the number and quality of NICU facilities, increasing the number of NICU nurses and decreasing the high nurse to patient ratios from 1:5 (or 2 nurses:10 babies), the development of discharge guidelines as well as the creation of discharge educational materials and equipment by hospitals, and further training for NICU nurses on how to provide consistent discharge education for families.

"Currently, the hospital should make guidelines and operational standards for discharge planning and legalize it for use by us, so we have a guide to do it." (Nurse 4)

The nurses' recommendations revealed a desire for continuity of care for parents and a provision of peer support for mothers both after hospital discharge. One participant stated that it was better if mothers of a LBW baby in the NICU had support and sharing from mothers that had been in a similar situation, after their baby was discharge from the hospital.

"The mother should have a friend to share with after hospital discharge related to the care of their baby at home. For example, one day there was a mother of LBW baby who was a primigravida, but she was 36 years old. At that time, the mother could not even take care of the baby at home because she felt unable." (Nurse 4).

Another nurse said

"We hope to gather the parents who have been discharged and the parents of babies still hospitalized, so they can share their experiences of caring for the baby in the hospital and how they care for their baby at home." (Nurse 1)

4. Discussion

Preparing parents of a preterm infant for hospital discharge is a primary responsibility of nurses, even more so than other hospital staff. As such, Indonesian NICU staff are always involved in the infants' daily care from admission until the day of hospital discharge. The nurse has a role to provide discharge education for parents and caregivers with the knowledge and skills needed to effectively take care of their baby and achieve a smooth transition from the hospital NICU to home (Weiss et al., 2017). Discharge education must be planned and implemented from the day the baby is admitted to the NICU in order to ensure parents are engaged and supported during a baby's daily cares and while preparing for discharge to home (Aloysius et al., 2018). This current study revealed different perspectives of nurses demonstrating a diversity of knowledge among nurses regarding the 'right' time to begin discharge education for parents of LBW and preterm infants. Most nurse participants reported that they began discharge preparation after a baby became physiologically stable or a few days before hospital discharge after the doctor determined a discharge date and gave a directive or wrote an order. Like this study, researchers in Australia also found that most nurses (52%) initiated discharge planning once the doctor set a discharge date and wrote the discharge order (Graham et al., 2013).

Diversity was not only about the nurse participant's perceptions of the discharge preparation process, but also about what assessments and activities they performed in establishing a parent's readiness for discharge. Each nurse had a different focus of what to assess, but all assessed the daily observations of a mother's involvement in their baby's daily cares. Other research has described that nurses assessed parents' discharge readiness using written tools containing several components such as infant care skill readiness and emotional readiness (Smith et al., 2009). Other tools contained knowledge of infant care, parental status, infant status, coping abilities and expected support (Weiss, 2020), which have been adapted and validated in Bahasa Indonesia versions. These tools present evidence in four components (knowledge and coping ability, physical-emotional readiness, power and pain, and expected support) (Hariati et al., 2020a). A lack of understanding of what is required when implementing discharge planning causes diversity in its implementation (Reshidi et al., 2016).

In this research, family-centred care (FCC) was a main philosophy of discharge preparation by Indonesian nurses. FCC has four central tenets: dignity and respect, information sharing, family participation in care and family collaboration (Gómez-Cantarino et al., 2020; Smith et al., 2013). This study revealed that nurses supported the FCC tenets by enhancing mother-infant interaction evidenced by three subthemes, 1) parental education about daily baby care, 2) empowering mothers to provide daily care and 3) providing support and motivating mothers to

care for their baby, all of which enhances involvement in infant care. Family involvement is the FCC pillar that facilitates parents' participation in daily routines and care, assisting parents in recognizing the importance of their role of caring for their infant (Gómez-Cantarino et al., 2020). Introducing FCC into discharge preparation enabled improved maternal self-efficacy scores, reduced length of hospital stay for the infant, and reduced healthcare expenditures post-hospital discharge (Ingram et al., 2016). In Indonesia, the implementation of FCC is supported by a hospital policy that does not limit parental access to their baby from the first day of admission onward (Hariati et al., 2020b).

Empowering mothers by encouraging parental involvement in routine baby cares and in the preparations for discharge facilitates parent-infant interactions and integrates parents into the healthcare team. This promotes active parental participation in the NICU's day-to-day care routines and establishes the necessary competencies to care for their baby after hospital discharge (Benavente-Fernández et al., 2017). Such preparation is individualized in order to prepare parents in assuming their parental roles by enhancing competencies such as providing medications at home, feeding their baby, accessing necessary supplies, changing tubes, and initiating cardiopulmonary resuscitation if required (Purdy et al., 2015).

Hospital discharge is cited as one of the most vulnerable points in a baby's care transition to home. Its effective execution has significant implications on a patient's recovery trajectory. The most effective tool in a clinician's toolbox to promote infant and parent healing is the effective delivery of communicating discharge instructions for parents. Patient education breakdowns. Parents sometimes receive conflicting recommendations, confusing medication regimens, and unclear instructions about follow-up care and are sometimes excluded from the discharge planning process. Parents may lack a sufficient understanding of the medical condition or the plan or care. As a result, they do not buy into the importance of following the care plan or lack the knowledge or skills to do so.

Actively involving parents in their baby's care while in the NICU and preparing for baby's discharge to home from the first day of admission is part of every discharge in the United States (Committee on Fetus and Newborn American Academy of Pediatrics, 2008). Similarly, this current study identified that nurses implemented discharge preparation by providing parental education about the daily care for their infant. The content of parental discharge education was focused on basic infant care about feeding (breastfeeding, cup feeding and/or bottle feeding, mixing formula), dressing, KMC implementation, and handling other situations such as utilizing medical equipment and medication preparation. However, this content was less than those identified in the AAP comprehensive discharge education program such as technical infant care skills, home environment preparation, car seat/bed use, preterm infant behaviour: normal and abnormal, and anticipatory guidance (Committee on Fetus and Newborn American Academy of Pediatrics, 2008; Smith et al., 2013). In this research, parental education began after the baby became physiologically stable, so no education was offered in the early days immediately after admission. Ideally, education should begin shortly after admission, throughout hospitalization and continue throughout the baby's discharge (Smith et al., 2013).

Differing from the AAP guidelines, the main concern of education in this study was related to KMC implementation. KMC is an efficient approach to provide a baby's needs for warmth, breastfeeding, infection protection, stimulation, safety, love, and bonding that was initiated by the World Health Organization (WHO) to reduce infant mortality in developing countries, such as Indonesia (Department of Reproductive Health and Research WHO, 2003). KMC was introduced and implemented in Indonesia since 1990 and practiced in a number of hospitals, receiving positive support from the Ministry of Health, Indonesia and staff members' enthusiasm (Pratomo et al., 2012). In Indonesia, mothers of premature infants required to confident with KMC before hospital discharge. Most of them continued KMC in first day after hospital

discharge, quickly become irregular, and stopped in the first week after hospital discharge (Hariati et al., 2021a, 2021b).

An important reported barrier to discharge planning was a lack of continuity of care and support after discharge, such as coordination of care with primary healthcare providers and home care follow-up which have both been shown to support successful discharge planning and reduce hospital readmissions. Lack of support systems and organized follow-up after hospital discharge have been identified as essential factors for effective discharge planning, as described in other studies (Gholizadeh et al., 2015; Purdy et al., 2015). Another existing barrier that NICU nurses reported in carrying out parental education was a mothers' psychological responses and demeanor. In line with findings from a systematic review, parental emotions and behaviors have been found to affect the discharge planning process because they may interfere with the parents' abilities to focus on, learn, and adapt to their babies' needs and conditions (Reshidi et al., 2016).

Another key recommendation arising from this study is the need to develop and enact policy for comprehensive discharge planning guidelines in NICUs in Indonesia. In line with this study, a recent study in Iran identified barriers to improving the quality of discharge planning was a lack of prioritization, standardized guidelines and packaging of discharge services (Gholizadeh et al., 2015).

Understanding nurses' perspectives in the implementation of discharge planning and reflecting on how they prepare parents discharge readiness, provides deeper insights in how to improve the process. There is clearly a need for hospital policy and guidelines for discharge, enhanced knowledge and education skills for nurses, improved facilities, and an infrastructure to support the healthcare team and families in preparing for an infant's discharge such as durable medical equipment, educational materials and tools for discharge teaching, applicable guidelines as well as standard operational processes.

5. Limitations and implications for future studies

This study has several limitations. First, although all of the nurses worked in the NICU for a minimum of five years, nurses working in the NICU had different educational backgrounds, such as diplomas and bachelor's degrees which could impact the baseline knowledge of nurses. Another limitation is that although all nurses had received basic NICU training, that training differed among the nurses. Future studies should aim to assess gaps in the healthcare needs for an effective hospital discharge. Moreover, further studies are needed to explore the gaps in the perceptions of both nurses and parents related to the healthcare needs prior to discharging NICU babies from hospital to home.

6. Conclusion

This study found that discharge readiness planning for parents of babies in the NICU had not been well planned by nurses. Like other studies, the best time to begin preparing parents for their baby's discharge was the first day of admission to the NICU by encouraging open access to their baby, open communication among the healthcare team, and knowledge sharing. approaches for assessing parents' readiness could hamper the discharge planning process. Nurses were found to facilitate mother-infant interactions while mothers were providing daily cares for their baby. Nurses enhanced parental involvement by providing parental education, empowering mothers when caring for their infant, supporting the family unit and by motivating them to provide cares for their babies. Nurses faced several barriers in effectively preparing parents for the discharge of their baby; which related to maternal variables, hospital policy, and continuity of care factors. Despite these barriers, all nurse participants tried their best to effectively prepare mothers for their baby's discharge by providing support systems and any available resources, and empowering mothers to provide infant care independently until they were ready for hospital discharge. Overall,

discharge planning guidelines, hospital policies and multidisciplinary collaboration are all necessary for the successful implementation of a discharge program in order to achieve discharge readiness in parents of a hospitalized NICU baby.

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8. Ethical statement

The ethical approval for this recent study was obtained from Hasanuddin University Medical Faculty Ethics Committee (admission number: 356/H4.8.4.5.31/PP36-KOMETIK/2017). This research conforms to the provisions of the Declaration of Helsinki in 1995.

All study participants provided informed consent, and their anonymity was preserved.

Declaration of competing interest

No conflicts of interest regarding this study.

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References

- Aloysius, A., Kharusi, M., Winter, R., Platonos, K., Banerjee, J., Deierl, A., 2018. Support for families beyond discharge from the NICU. *J. Neonatal Nurs.* 24, 55–60. <https://doi.org/10.1016/j.jnn.2017.11.013>.
- Bapat, R., McClead, R., Shepherd, E., Ryshen, G., Bartman, T., 2016. Challenges, successes and opportunities for reducing readmissions in a referral-based children's hospital NICU. *J. Neonatal Perinat. Med.* 9, 433–440. <https://doi.org/10.3233/NPM-161624>.
- Benavente-Fernández, I., Redondo, M.D.S., Castellanos, J.L.L., Munuzuri, A.P., Gracia, S.R., Campillo, C.W.R., López, E.S., Luna, M.S., 2017. Hospital discharge criteria for very low birth weight newborn. *An. Pediatria* 87, 54. <https://doi.org/10.1016/j.anpedi.2016.11.007> e1-54.e8.
- Blackburn, S., 1995. Problems of preterm infants after discharge. *J. Obstet. Gynecol. Neonatal Nurs.* 24, 43–49. <https://doi.org/10.1111/j.1552-6909.1995.tb02377.x>.
- Clarke, V., Braun, V., 2017. Thematic analysis. *J. Posit. Psychol.* 12, 297–298. <https://doi.org/10.1080/17439760.2016.1262613>.
- Committee on Fetus and Newborn American Academy of Pediatrics, 2008. Hospital discharge of the high-risk neonate. *Pediatrics* 122, 1119–1126. <https://doi.org/10.1542/peds.2008-2174>.
- Department of Reproductive Health and Research WHO, 2003. Kangaroo mother care: a practical guide. WHO Library Cataloguing-in-Publication Data, pp. 1–48. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9241590351/en/. (Accessed 11 October 2019).
- Gholizadeh, M., Delgoshahi, B., Gorji, H.A., Torani, S., Janati, A., 2015. Challenges in patient discharge planning in the health system of Iran: a qualitative study. *Global J. Health Sci.* 8, 168. <https://doi.org/10.5539/gjhs.v8n6p168>.
- Gómez-Cantarino, S., García-Valdivieso, I., Moncunill-Martínez, E., Yáñez-Araque, B., Gurrutxaga, M.I.U., 2020. Developing a family-centered care model in the neonatal intensive care unit (Nicu): a new vision to manage healthcare. *Int. J. Environ. Res. Publ. Health* 17, 1–22. <https://doi.org/10.3390/ijerph1719197>.
- Graham, J., Gallagher, R., Bothe, J., 2013. Nurses' discharge planning and risk assessment: behaviours, understanding and barriers. *J. Clin. Nurs.* 22, 2338–2346. <https://doi.org/10.1111/jocn.12179>.
- Gunawan, A.H., 2016. Analysis of nursery needs of intensive services units based on work loads and competency in Intensive Services Units in Dr. Oen Solo Baru Hospital, Year 2015. *J. ARSI* 2, 98–114.
- Hariati, S., McKenna, L., Lusmilasari, L., Reisenhofer, S., Sutomo, R., Febriani, A.D.B., Arsyad, D.S., 2020a. Translation, adaptation and psychometric validation of the Indonesian version of the Readiness for Hospital Discharge Scale for parents of low birth weight infants. *J. Pediatr. Nurs.* 54, e97–e104. <https://doi.org/10.1016/j.pedn.2020.05.010>.
- Hariati, S., Sutomo, R., Lusmilasari, L., Febriani, A.D.B., 2021a. Related factors of discontinuous kangaroo mother care at home for low birth weight infant after NICU discharge. *Int. J. Pharma Med. Biol. Sci.* 10, 120–124. <https://doi.org/10.18178/ijpmb.10.3.120-124>.
- Hariati, S., Sutomo, R., Lusmilasari, L., Febriani, A.D.B., Kadar, K., 2020b. Discharge readiness of Indonesian mother with preterm infant in NICU. *Enferm. Clin.* 30, 234–237. <https://doi.org/10.1016/j.enfcli.2019.07.096>.
- Hariati, S., Sutomo, R., McKenna, L., Reisenhofer, S., Lusmilasari, L., Febriani, A.D.B., 2021b. Indonesian mothers' beliefs on caring practices at home for preterm babies after hospital discharge: a qualitative study. *J. Spec. Pediatr. Nurs. (JSPN)* 1–12. <https://doi.org/10.1111/jspn.12330>.
- Holloway, L., Wheeler, S., 2010. In: *Qualitative Research in Nursing and Healthcare*, third ed. Wiley-Blackwell, Chichester.
- Indonesian Ministry of Health, 2015. *Hospital Standards of Nursing Service in Specialized Hospital (No. PMK Number 10, 2015)*. Indonesia Minister of Health, Indonesia.
- Ingram, J.C., Powell, J.E., Blair, P.S., Pontin, D., Redshaw, M., Manns, S., Beasant, L., Burden, H., Johnson, D., Rose, C., Fleming, P.J., 2016. Does family-centred neonatal discharge planning reduce healthcare usage? A before and after study in South West England. *BMJ Open* 6, 1–9. <https://doi.org/10.1136/bmjopen-2015-010752>.
- Kuzniewicz, M.W., Parker, S.-J., Schnake-Mahl, A., Escobar, G.J., 2013. Hospital readmissions and emergency department visits in moderate preterm, late preterm, and early term infants. *Clin. Perinatol.* 40, 753–775. <https://doi.org/10.1016/j.clp.2013.07.008>.
- Lee, A.C., Blencowe, H., Lawn, J.E., 2019. Small babies, big numbers: global estimates of preterm birth. *Lancet Glob. Heal.* 7, e2–e3. [https://doi.org/10.1016/S2214-109X\(18\)30484-4](https://doi.org/10.1016/S2214-109X(18)30484-4).
- Lin, C.-Y., Hsu, C.-H., Chang, J.-H., 2020. Neurodevelopmental outcomes at 2 and 5 years of age in very-low-birth-weight preterm infants born between 2002 and 2009: a prospective cohort study in Taiwan. *Pediatrics and Neonatology* 61 (1), 36–44. <https://doi.org/10.1016/j.pedneo.2019.05.006>. In this issue.
- Matua, G.A., Wal, D.M. Van Der, 2015. Differentiating between descriptive and interpretive phenomenological research approaches. *Nurse Res.* 22, 22–27. <https://doi.org/10.7748/nr.22.6.22.e1344>.
- McGowan, E.C., Laptook, A.R., Lowe, J., Peralta-Carcelen, M., Chowdhury, D., Higgins, R.D., Hintz, S.R., Vohr, B.R., 2019. Developmental outcomes of extremely preterm infants with a need for child protective services supervision. *J. Pediatr.* 215, 41–49. <https://doi.org/10.1016/j.jpeds.2019.07.063> e4.
- Medina, I.M.F., Granero-Molina, J., Fernández-Sola, C., Hernández-Padilla, J.M., Ávila, M.C., Rodríguez, M., del, M.L., 2018. Bonding in neonatal intensive care units: experiences of extremely preterm infants' mothers. *Women Birth* 31, 325–330. <https://doi.org/10.1016/j.wombi.2017.11.008>.
- Pratomo, H., Uhuudiyah, U., Sidi, I.P.S., Rustina, Y., Suradi, R., Bergh, A.-M., Rogers-Bloch, Q., Gipson, R., 2012. Supporting factors and barriers in implementing kangaroo mother care in Indonesia. *Paediatr. Indones.* 52, 43. <https://doi.org/10.14238/p52.1.2012.43-50>.
- Purdy, I., Craig, J., Zeana, P., 2015. NICU discharge planning and beyond: recommendations for parent psychosocial support. *J. Perinatol.* 35, 24–28. <https://doi.org/10.1038/jp.2015.146>.
- Reshidi, N. Al, Long, T., Cappleman, J., 2016. Factors influencing discharge planning in neonatal intensive care units in Saudi Arabia: a systematic review. *Gulf Med. J.* 5, 27–35.
- Smith, V.C., Hwang, S.S., Dukhovny, D., Young, S., Pursley, D.M., 2013. Neonatal intensive care unit discharge preparation, family readiness and infant outcomes: connecting the dots. *J. Perinatol.* 33, 415–421. <https://doi.org/10.1038/jp.2013.23>.
- Smith, V.C., Young, S., Pursley, D.M., McCormick, M.C., Zupancic, J.A.F., 2009. Are families prepared for discharge from the NICU? *J. Perinatol.* 29, 623–629. <https://doi.org/10.1038/jp.2009.58>.
- Unicef, 2019. 1 in 7 babies worldwide born with a low birthweight [WWW Document]. URL <https://www.unicef.org/press-releases/1-7-babies-worldwide-born-low-birthweight-lancet-global-health-unicef-who> (accessed 10.28.19).
- Valizadeh, L., Namnabati, M., Zamanzadeh, V., Badiee, Z., 2013. Factors affecting infant's transition from neonatal intensive care unit to home: a qualitative study. *Iran. J. Nurs. Midwifery Res.* 18, 71–78.
- Weiss, Marianne E, et al., 2020. Parent readiness for hospital discharge scale : Psychometrics and association with postdischarge outcomes. *Journal of Pediatric Health Care* 34 (1), 30–37. <https://doi.org/10.1016/j.pedhc.2019.06.011>. In this issue.
- Weiss, M.E., Bobay, K.L., Bahr, S.J., Costa, L., Hughes, R.G., Holland, D.E., 2015. A Model for hospital discharge preparation. *J. Nurs. Adm.* 45, 606–614. <https://doi.org/10.1097/NNA.0000000000000273>.
- Weiss, M.E., Sawin, K.J., Gralton, K., Johnson, N., Klingbeil, C., Lerret, S., Malin, S., Yakusheva, O., Schiffman, R., 2017. Discharge teaching, readiness for discharge, and post-discharge outcomes in parents of hospitalized children. *J. Pediatr. Nurs.* 34, 58–64. <https://doi.org/10.1016/j.pedn.2016.12.021>.
- World Health Organization, 2018. Preterm birth. WHO. <https://www.who.int/new-s-room/fact-sheets/detail/preterm-birth>. (Accessed 7 September 2019).