Review Article ISSN 2639-944X

Journal of Medical - Clinical Research & Reviews

Improving the Completion Rate of Home Care Skills for Parents of Preterm Infants

Chia-Shing Wang[1,2*] and Ruei-Yu Tsai[2,3]

[1]*Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan.*

[2]*Department of Health.*

[3]*Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan.*

[*]Correspondence:

Chia-Shing Wang, Department of Nursing, National Taiwan, University Hospital, No. 7, Chung-Shan S. Rd., Taipei City 10002, Taiwan, ROC.

Received: 10 June 2021; **Accepted:** 02 July 2021

Citation: Chia-Shing W, Ruei-Yu T. Improving the Completion Rate of Home Care Skills for Parents of Preterm Infants. J Med - Clin Res & Rev. 2021; 5(7): 1-8.

ABSTRACT

The survival rate of preterm infants in Taiwan has been on the rise in the last decade, and they must be taken care of with parents who possess good care skills after returning home. However, it is extremely difficult to provide parents with complete care guidance in an intensive care unit with high disease complexity and limited visiting hours. In this project, we conducted a situational analysis of parents of preterm infants weighing 1,500-2,100 g at 28-36 weeks and found that they had a high demand for knowledge about care but a low completion rate of performing care skills after receiving nursing guidance. The reasons were as follows: 1. The nurses did not understand the care resource model; 2. Lack of care manuals and standard operating procedures for health education guidance; 3. The promotion of the support group guidance program was not effective; and 4. Care audit and monitoring processes were not established. Therefore, the following should be developed: 1. Care manuals for parents of preterm infants; 2. Nursing guidance standards; 3. Care record form for caregiving consistency; and 4. Care audit feedback form. After the project, the completion rate of parental care skills increased from 37.1% before the improvement to 81.6%. The project thus improved the completion rate of parents' care skills for preterm infants, continued the concept of care and patient safety goals of the nursing team, and achieved a triple win for doctors, nurses, and patients, thereby increasing parental confidence in the care of preterm infants. It is hoped that the results can assist parents of preterm infants in meeting their various needs.

Keywords

Parents of preterm infants, Home care skills.

Introduction

With the continuous advancement in rescue technology for perinatal and preterm infants, the survival rate of preterm infants in Taiwan has been increasing in the last decade [1]. According to the statistics of the five preterm infant medical training centers of the Premature Baby Foundation of Taiwan, the survival rate of premature babies is over 98% on average, and the survival rate of those born at 26-27 weeks of gestation or with a birth weight of 751-1,000 g is about 70%-85% [2]. The survival rate of preterm infants with a birth weight of 1,000-1,500 g is 90% [3], and 13.5% of them were admitted to the Neonatal Intensive Care Unit (NICU) for further life-sustaining treatment or long-term care immediately after birth. Some studies suggest that parents of preterm infants in the NICU experience stressors such as the multitude of devices and tubes on premature babies, unfamiliarity with the NICU environment, limited visiting hours, unfamiliarity with treatment procedures, and the inability to perform the parental role when the mother is separated from the infant, all of which add to parental stress and cause anxiety [4]. As premature birth is an unexpectant experience, it is a health and developmental crisis [5], affects a family's functioning and quality of life, and has a significant impact on the family [6,7]. The separation from parents and the delayed identification with premature babies may also prevent the establishment of parent-child attachment, which again creates great stress on both parties [8,9]. Therefore, families with preterm infants face greater pressure from changes in family stability and parental roles than those with normal newborns [10,11]. In addition

to improving the quality of care for preterm infants, caregivers can also recognize parents' state of mind and the meaning of their behavioral responses in a timely manner, value their stress and needs, understand their coping strategies [4,12], as well as appropriately provide care needs with a family-centered care concept. In this way, parents' operational and emotional behaviors can be greatly enhanced, and parent-child relationships and family resilience can be strengthened. Since the NICU is the place where premature babies interact with their parents initially, it has been clinically found that parents have complex emotions such as guilt, hopelessness, anxiety, and depression when facing their child's preterm birth and hospitalization. It has also been found that preterm infants face many complex health problems after passing the acute phase and need close observation, care, and monitoring for a extended period of time, causing great psychological stress on parents. In the current situation, there are only support groups for preterm infants every other week and random bedside guidance during daytime meetings, and parents are rarely provided with information and emotional support, resulting in a lack of confidence and incomplete care skills. Therefore, to improve the quality of care for preterm infants and to establish a planned and effective care guidance system is the urgent task and work of our unit for family care of preterm infants at this stage. Through this project, we hope to use existing medical resources to re-plan and establish nursing guidance standards and provide appropriate and timely resources as well as initial home health education for the purpose of reducing readmissions [4,13].

Analysis of status quo

Status quo of the unit and care guidance implementation

The NICU was established in 1989 and has expanded from 16 beds to 25 beds (2018), with a target population of critically ill infants and preterm infants within 3 months of birth. There are 48 nursing staff (with an average seniority of 7.5 years). The average bed occupancy rate of the unit is 84.5%, of which premature babies account for 79.8%. The average hospital stay is 19.7 days, and the nurses takes care of one to three premature or critically ill babies per day. There are currently no standards for home care guidance for preterm infants, nor is there a standardized model or process. The current care guidance methods include support groups and bedside care guidance, both of which have their own advantages and disadvantages. Because in support groups other family members share their experiences, parents of premature babies are encouraged to participate in the support group sessions as much as possible. If they are unable to fit into the class schedule, the primary night nurse practitioner will print out a health education leaflet based on personal experience and the condition of the premature baby to provide brief care guidance.

Current needs and guidance on parental care for premature babies

To understand the current needs and guidance of parental care for premature babies, the project team conducted a survey between January 2 and January 15, 2018, targeting 30 parents of preterm infants who were hospitalized for 3–20 days, born at 28–36 weeks, and weighed 1,500–2,100 g. Using the questionnaire "Current Needs and Guidance on Parental Care For Premature Babies" designed by the team members, we collected data through on-site and telephone interviews. The results showed that 66.7% were aware of the existence of support groups for parents of preterm infants, but 30% had not joined such groups (Table 1).

Table 1: Current needs and guidance on parental care for premature babies (N = 30).

Question	Option	N	Percentage %
1. Do you know of any support groups for parents of premature babies?	No	10	33.3
	Yes	20	66.7
2. Have you ever joined a support group?	≥ 2 times	2	6.6
	1 time	19	63.3
	0 times	9	30
3. What home care needs are expected from nursing staff?			
Preparation and care of premature babies for discharge		30	100
Frequently asked questions of premature babies		30	100
Newborn and preterm feeding, constipation and diarrhea management, and stool and bowel observation		30	100
Care of infant respiratory infections		24	80
Breastfeeding, exhaust and hiccup treatment, and overflow and vomiting treatment		25	83.3
Basic life-saving for babies		22	73.3
Kangaroo care and parent-child relationship		21	70
Infant touch and massage		19	63.3
Management of crying in premature babies		17	56.6

Since there is no literature or supporting data on parental needs of preterm infants, eight items were selected, as the priority care guidance items for this unit, assuming a 60% parental need rate as the cut-off point.

Completion rate of care guidance for parents of preterm infants

(i) Checklist design: To assess the consistency of the checklist, two attending physicians and three nursing supervisors and senior nurses developed the "Standard Rating Scale for Parental Care Guidance for Premature Babies during Hospitalization" using words that parents could easily understand.

(ii) Target group: 30 parents of preterm infants mentioned above.

(iii) Check results: The nurses in this project used the "Standard Rating Scale for Parental Care Guidance for Premature Babies during Hospitalization" to check the completeness of parental care skills of preterm infants, which ranged between 23.3–50%, with an average completion rate of 37.1%. This shows that the demand for parental care guidance during hospitalization was high, but the participation rate in support groups was low; besides, the acceptance of preterm care guidance was significantly low (Table 2).

To understand the reasons for the low completion rate of care skills among parents of preterm infants, the project team sent 42 copies of the questionnaire to nurses of the unit using a double-check anonymous method between January 19 and February 10, 2018,

Table 2: Check results of the completion rate of parental care guidance for preterm infants during hospitalization (N = 30).

Item	Assessment content	Number of completion	Completion rate (%)
Preparation and care of premature babies for discharge	Home environment preparation? When should I return to the clinic? Nutrition, vaccination, etc.	12	40
Frequently asked questions of premature babies	Problems and care, the importance and precautions of follow-up.	9	30
Newborn and preterm feeding, constipation and diarrhea management, and stool and bowel observation	Principles of breastfeeding, posture, precautions, skin color observation, normal urine and bowel traits, color, and frequency.	15	50
Care of infant respiratory infections	Explain symptoms, factors, care and treatment, prevention, and when to send to the doctor.	13	43.3
Breastfeeding, exhaust and hiccup treatment, and overflow and vomiting treatment	Precautions for collection, storage and transportation, cleaning and disinfection of utensils, breastfeeding posture, methods, teaching, and vomiting treatment and precautions.	14	46.7
Basic life-saving for babies	Explain the purpose, three steps of first aid (ABC), precautions (119, etc.), and how to seek help and handle.	9	30
Kangaroo care and parent-child relationship	Advantages, techniques, preparation (parents, baby, time), and notes.	10	33.3
Infant touch and massage	Massage techniques, methods, and benefits.	7	23.3
Mean			37.1

Table 3: Reasons for the low completion rate of care skills among parents of preterm infants (N = 40).

Reason		N	Percentage %
Institutional norms	1. Lack of care record form for care guidance consistency	40	100
	2. Lack of care manuals and standard operating procedures for guidance	37	92.5
	3. Busy work leads to insufficient time for health education, wrong timing and poor quality	37	92.5
	4. Insufficient publicity and inflexible and inappropriate scheduling for guidance courses by support groups	32	80
	5. Lack of care audit and monitoring evaluation form	38	95
Nurses	1. No regular nurse who can fully explain the content of care and health education results in incoherent descriptions.	36	90
	2. Heavy workload and cumbersome work routines lead to a lack of time to understand parental needs	34	85
	3. Insufficient knowledge of caregivers and failure to provide timely care guidance	30	75
	4. Differences in personal qualifications and experiences causes varying health education contents	31	77.5
Parents	1. Not convenient to participate during the confinement period	38	95
	2. No experience in baby care	30	75
	3. Unfamiliar with the habits of premature babies	30	75
	4. Low willingness to learn	29	72.5

and 40 were returned, with a return rate of 95.2%. The results are shown in Table 3 and divided into three aspects: parents, nurses, institutional norms, and the cause-and-effect analysis is shown in Figure 1.

Figure 1 Cause-and-effect analysis of the low completion rate of care skills among parents of preterm infants.

After analyzing and summarizing the above problems, the completion rate of parents of preterm infants in intensive care units performing care skills was only 37.1%, for which the reasons were summarized as follows: 1. The nurses did not understand the care resource model; 2. Lack of care manuals and standard operating procedures for health education guidance; 3. The promotion of the support group guidance program was not effective; 4. Care audit and monitoring processes were not established.

Purpose of the project

Today's preterm care emphasizes the cooperation of the medical team and the involvement of the parents of preterm children. It is hoped that through root cause analysis and appropriate care and health education guidance, parents can learn and perform their parenting role during the hospitalization of their preterm children and improve their confidence in care. This project took into account the learning effectiveness of new immigrants from a medical center, and based on the ability of the project team, the completion rate of parental care skills for premature infants was increased from 37.1% to over 70%.

Literature review

Care Needs of parents of premature babies

Needs are a feeling, state, and value judgment according to expert opinion [14]. Parents' experiences of preterm crisis are influenced by their interaction with the NICU, the preterm child, and other social systems, which will continue after hospital discharge [15]. Parents are often the primary caregivers of preterm children upon discharge to their homes; therefore, if nurses can provide systematic teaching of caregiving knowledge and skills to parents as early as possible during hospitalization, and engage and expose them to caregiving, it will improve parents' knowledge and skills in caring for their preterm children, increase their confidence in caregiving [16-18], and relieve the stress of caregiving after returning home [19]. In addition to the basic physiological and developmental needs of a normal newborn, because they are not fully mature at birth, preterm infants require the care of allied health professionals to facilitate their growth and development outside their mother's

body. A literature review indicated that care knowledge includes the knowledge of infant physiological development, breathing, nutrition, vaccination, sleep cycle, and the use of car safety seats [3,18]. Care capabilities include apnea, milk choking, first aid, chest percussion, [18,20], precautions for breastfeeding and formula milk, abnormality management, developmental care, medication, safety seat selection, and parent-child interaction [20]. Particularly, the teaching of feeding, sleeping, bathing, soothing, and apnea in the first week can greatly reduce parents' difficulties in taking care of basic home needs [20]. The care of a preterm child in the early stage of its discharge from the hospital is a unique life experience for parents and families, as well as a turning point for parents, as they face changing roles and family adjustment [10]. Nurses should use their expertise to assess the readiness of their clients and use empathy to encourage and guide parents to participate in the caregiving process, and to communicate and coordinate the family's dilemma in a timely manner to help adjust to the role transition.

In order to help adjust the role and function transition [21], in the current situation of gradually decreasing medical manpower, it is a considerable challenge for nurses to effectively perform the role of nursing guidance, consultation, and health education.

The importance of nursing guidance for parents of preterm infants

It is extremely important for nurses to provide proper health guidance [22], as inaccurate health guidance can easily lead to unintentional injuries, and good health guidance can prevent many complications, especially for preterm infants who are out of the acute phase. Nursing guidance is a critically important and indispensable part of the treatment process, highlighting the significant independent role of nursing expertise and skills [23]. The NICU is the place in which preterm infants interact with their parents, so NICU nurses must be sensitive to the psychological feelings of the parents of preterm infants [24], help them understand the medical treatment and familiarize themselves with the environment and equipment of the NICU, and encourage early parental contact, participation in care, and support, thus facilitating parents' role recognition. It is expected that early interventions of complete care guidance will increase family caregiving skills, relieve caregiving stress, reduce the occurrence of complications, and avoid waste of medical costs due to increased hospitalization days [25]. It is a mother's job and responsibility to care for her children. If nurses proactively communicate with mothers, coordinate and develop classes, use standardized oral nursing guidance and written nursing instruction manuals, and arrange "demonstration and hands-on practice" or "individual instruction," it can effectively assist mothers in learning to care for their newborns and learn early, complete, and timely care plans for preterm infants. However, the shortage of nursing manpower and heavy workload prevent nurses from providing adequate health education guidance [26]; thus, it is crucial to choose the strategy of improving health education guidance for nurses.

How to devise effective nursing guidance methods

Nursing guidance is a continuous learning process. With the advancement of technology, health workers now have diversified options of health education tools to apply effective guidance strategies through individual or group approaches. Guidance techniques can be written information with oral guidance, which allows parents to access, repeat, and read over and over again at any time regardless of time and location constraints, thus reinforcing memory. Furthermore, parents can also discuss problems and clarify concerns with nurses to remind them of the focus and direction of care [25]. Health education videos can be played repeatedly according to parents' needs and convenience, so as to improve parents' caregiving skills and learning outcomes. The development of a standard process for nursing guidance can allow nurses to follow the standard direction as a complete shift and follow-up for continuous care, as well as reduce the burden on nursing resources, improve the effectiveness of nursing guidance, and enhance the quality of care [27]. In view of the above literature, it is necessary and essential to arrange educational training concerning caregiving skills for parents of preterm infants to develop the correct concept of care.

Solutions and processes

To achieve the purpose of the project, members of the project team collected data from the analysis of the current situation and discussed the reasons for the low level of care provided by parents of preterm infants. After referring to the relevant literature, we formulated countermeasures and proposed eight possible solutions.

1. Establish a standard operating procedure for nursing guidance; 2. Develop a care record form for consistency in care guidance; 3. Deploy regular nurses to participate in care guidance; 4. Develop a care audit feedback monitoring scale; 5. Promote and encourage participation in support groups; 6. Provide post-discharge consultation services; 7. Develop care manuals for parents of preterm infants; 8. Produce a DVD of support group content.

The main problems identified were discussed and a decision matrix was used to consider possible alternatives (Table 4). The importance, feasibility, cost, manpower, and effectiveness of the solutions were rated, with the highest score being 5, the middle score being 3, and the lowest score being 1. It was found that none of the items were less than 20 points. After discussion, the standard of 20 points was used to determine 6 solutions.

The project was conducted for nine months from January 4 to October 9, 2018, divided into three phases: the planning phase, the implementation phase, and the evaluation phase (Table 5), as described below.

The planning phase (January 4 to April 30, 2018).
A project team was established to collect relevant information and analyze the current situation to identify problems, determine the theme of "Improvements on the completion rate of home care skills

Table 4: Decision matrix table.

Reason	Improvement plan	Importance	Feasibility	Cost	Manpower	Effectiveness	Total	Solution
Inconsistent or incomplete care guidance	Establish a standard operating procedure for nursing guidance	5	5	5	5	5	25	★
	2. Develop a care record form for consistency in care guidance	5	5	5	5	5	25	★
	3. Deploy regular nurses to participate in care guidance	5	5	4	3	5	22	★
Lack of care ratings	1. Develop a care audit feedback monitoring scale	5	5	2	5	5	22	★
Ineffective support groups	1. Promote and encourage participation in support groups	5	5	4	4	5	23	★
	2. Provide post-discharge consultation services	5	4	4	2	2	17	
Health education leaflets are cumbersome and not compiled	1. Develop care manuals for parents of preterm infants	5	5	5	5	5	25	★
	2. Produce a DVD of support group content DVD	5	1	2	5	5	18	

Table 5: Work schedule of implementation plan.

Nursing guidance date Work items and progress		2018								
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Phase 1: Planning phase	1. Develop care manuals for parents of preterm infants		★	★						
	2. Establish a standard operating procedure for nursing guidance		★	★						
	3. Develop a care record form for consistency in care guidance			★						
	4. Develop a care audit feedback monitoring scale			★						
Phase 2: Implementation phase	1. Advocacy after the administrative meeting				★	★				
	2. In-service education and training				★	★				
	3. Include in the health education routine at admission					★	★			
	4. Strengthen advocacy and join support groups for health education guidance					★	★	★	★	★
	5. Deploy regular nurses to assist with care guidance and health education					★	★	★	★	★
Phase 3: Evaluation phase	1. Results analysis and tracking							★	★	★
	2. Implementation effectiveness and evaluation							★	★	★

for parents of preterm infants," and propose specific improvement measures to address the major problems.

(i) Develop care manuals for parents of preterm infants (March 4 to March 20, 2018): Parents of preterm infants who had been hospitalized for 3 to 20 days were asked to receive care guidance for their preterm infants, which included birth weeks, birth weight, appearance, mobility, current condition, and the most needed care guidance schedule. The advocacy and health education started on March 22 and was officially implemented on March 23.

(ii) Establish a standard operating procedure for nursing guidance (March 10 to April 1, 2018): The team divided the work according to the theme and used online resources to collect relevant literature at home and abroad, including the literature on the care needs of mothers of preterm infants and influencing factors, as well as the needs of families of patients in intensive care units and their care, to establish the standards.

(iii) Develop a care record form for consistency in care guidance (April 3 to April 15, 2018): Based on the analysis of the current situation of the parental care needs for premature babies and the literature review, the project team proposed the care record form for consistency, including the first and second follow-up to ensure that the implementation is complete.

(iv) Develop a care audit feedback monitoring scale (April 13 to April 30, 2018).

The implementation phase (May 2 to October 1, 2018) highlighted advocacy and the organization of in-service education and health education guidance.

(i) Advocacy after the administrative meeting: When participating in the report of the administrative meeting on May 2, 2018, the project members presented the project theme, purpose, and implementation guidelines, and announced the standard operating procedure to seek the support of the colleague team.

(ii) In-service education and training: The team organized an in-service education course for the unit on May 19, 2018, themed "Improvements on the completion rate of home care skills for parents of preterm infants," which was delivered orally and in writing to gain the consensus and support of unit nurses. All nursing faculty and nurse supervisors agreed to include in-service education and training courses for new nursing faculty, cross-trained nursing faculty in the unit, and routine health education at admission.

(iii) Strengthen advocacy and join support groups for health education guidance: From June 16 to October 18, 2018, preterm birth support groups changed their implementation policy as

follows: 1. Post the speakers, topics, dates, times, and sessions of the support groups for preterm infants one week in advance on the bulletin board outside the ward or on the NICU in-hospital website; 2. Post the content of the support groups and the rotation of sessions within six months in the Love Manual so that families know the topics and dates in advance; 3. Deploy members of the nursing guidance team to post the topics, dates, and times of the support groups under each bed monitor that week to remind parents to participate in group health education; 4. In the week of the group health education, the project nurses introduce the topic of group health education to the parents during the small night shift meeting.

(iv) Deploy regular nurses to assist with care guidance and health education: Changes in the parental health education policy from June 3 to October 6, 2018: 1. Provide timely information to parents about their preterm infant is current condition (appearance, behavioral response, cognitive development, and vital signs) during meeting and breastfeeding time; 2. Revise the duties of the primary nurse on the night shift, have a regular nurse guide the health education work, and provide guidance and record signature evaluation with the care manuals, so that parents feel that they have a health care worker who is familiar with their baby's condition at all times, and fathers who work and mothers in confinement can feel more at ease.

The evaluation phase (August 2 to October 6, 2018) focused on confirming whether the completion rate of parental care skills for preterm infants could be improved, and the evaluation and statistical analysis were conducted by the project members.

(i) Daily assessment of knowledge and skills of care for preterm children with stable physiological conditions, and strengthening of health education for those with poor learning outcomes according to individual needs.

(ii) For preterm infants transferred to the intermediate care unit, parents were visited on the second or third day to understand the actual effectiveness of their care, and detailed records were taken and handed over to the intermediate care unit.

(iii) Invite the primary nurse to present the status of implementation and difficulties encountered as a basis for improvement of future parental care guidance.

(iv) Monthly statistics on the completion rate of nursing guidance received by parents of preterm infants would be tracked as an indicator of the effectiveness of the project.

(v) Monthly statistics on the number of participants in support groups and calculation of the participation rate for that month.

(vi) This project aimed to improve the completion rate of care skills for parents of preterm infants. With the support of the unit nurse supervisor, the recognition of colleagues, and the joint efforts of the group members, the implementation of the countermeasures achieved remarkable results, with the completion rate increasing from 32.5% to 74.5%. Therefore, the standard operating procedure of care guidance for parents of preterm infants (Appendix I) was included in the regular practice.

(vii) Statistical analysis of the completion rate of parents receiving care skills for premature babies is shown in Table 6.

Result evaluation

The project was successfully carried out with the assistance of all nurses. Prior to the implementation of the project, the care of premature babies had been practiced in the nursing industry for many years, but there had been no standard operating procedure for care guidance and no consistency care record form or care audit feedback form. As a result, parents of preterm infants were clueless and had a low completion rate in receiving care for their preterm babies. After the implementation of this project, the completion rate increased from 37.1% to 81.6%, reaching the target. The project improved the completion rate of each item by more than 20%, with the highest completion rate of 76.6% for basic life saving for babies and the lowest completion rate for infant touch and massage. The need to promote the project in the ICU should be further evaluated. It is also worth mentioning that through the promotion of the project, parents were able to understand the care of their preterm children, whether interviewed in person or by phone, and they were able to respond to the demonstration based on the skills and techniques they had been taught. Parents were positive and satisfied with the quality of care, and 95% of them said that the manuals and DVD made them feel more at ease after returning home.

Conclusion

One of the functions and responsibilities of nursing is to meet the parents' "right to know" and provide effective teaching measures.

Table 6: Improvements in the completion rate of care skills among parents of preterm infants (comparison of statistical analysis before and after improvement).

Guidance item	Before (N = 30)		After (N = 30)	
	Number of completion	Completion rate (%)	Number of completion	Completion rate (%)
Preparation and care of premature babies for discharge	12	40	22	73.3
Frequently asked questions of premature babies	9	30	24	80
Newborn and preterm feeding, constipation and diarrhea management, and stool and bowel observation	15	50	26	86.6
Care of infant respiratory infections	13	43.3	22	73.3
Breastfeeding, exhaust and hiccup treatment, and overflow and vomiting treatment	14	46.7	27	90
Basic life-saving for babies	7	23.3	28	93.3
Kangaroo care and parent-child relationship	10	33.3	25	83.3
Infant touch and massage	9	30	19	63.3
Mean		37.1		81.6

Our responsibility is to make the best use of the teaching purpose. The main purpose of this project is to increase the completion rate of care skills among parents of preterm children from 37.1% to 81.6%, maintain good results, and establish the standard operating procedure. Premature babies in the NICU and their parents are often helpless and vulnerable. If nurses can provide parents with a timely opportunity to learn about their premature babies and to learn to care for them, both parents and health care providers will benefit greatly. To provide parents with the information they want more quickly, this project conducted a survey on the needs of parents of preterm infants receiving care guidance during hospitalization and promoted the development of the standard operating procedure on guidance consistency. By providing individualized nursing guidance through regular nurses, omissions or repetitions are avoided, continuity and completeness are taken into account, and mutual familiarity and trust are increased, which in turn enhances learning outcomes and has a positive impact on the overall quality of nursing services. It is hoped that the results of this project will serve as a reference for NICU nurses in caring for families with preterm infants, as well as a guide for parents of preterm infants in caring for their children, thus improving the overall quality of family care.

Since this unit is an intensive care unit, the premature babies were transferred to the intermediate care unit as soon as their condition stabilized; moreover, the fathers failed to attend support group classes because they had to work during their child's hospitalization. Therefore, the parents' needs would be better met through the continued promotion of a bedside care guidance program supplemented by group health education. During the implementation of the project, mothers were often limited by taboos and behavioral norms during confinement, and therefore, it was necessary to communicate care skills through fathers or grandparents, which affected the integrity of the mothers' learning of caregiving skills. In addition, it was found that mothers were not necessarily the primary caregivers of preterm infants after they were discharged from the hospital, and that the needs of multiparas differed from those of primipara. In the future, we hope to propose specific improvement measures to address these problems in order to improve the overall quality of care for preterm children.

Acknowledgments

Acknowledge colleagues who assisted in conducting the study or critiquing the manuscript.

References

1. Zou KY, Cao BN. Prematurity and mortality of preterm infants in Taiwan. A report on the 90-year results of the Taiwan Preterm Infant Tracking Group. Taipei Taiwan Society of Neonatology. 2001.
2. http://www.pbf.org.tw/html/content.asp?NSID=3&MGVOL=76&ID=956
3. Chen SM, Yang HM, Chuang HR, et al. Mothers' needs for care of preterm children and their influencing factors. Journal of Department of Early Care and Education. 2005; 1: 29-41.
4. Howland LC, Pickler RH, McCain NL, et al. Exploring biobehavioral outcomes in mothers of preterm infants. The American Journal of Maternal Child Nursing. 2011; 36: 91-97.
5. Able-Boone H, Stevens E. After the intensive care nursery experience Families perception of their being. Children is Health Care. 1994; 23: 99-114.
6. Arockiasamy V, Holsti L, Albersheim S. Fathers' experiences in the neonatal intensive care unit a search for control. Pediatrics. 2008; 121: 215-222.
7. Meijssen DE, Wolf MJ, Koldewijn K, et al. Parenting stress in mothers after very preterm birth and the effect of the Infant Behavioural Assessment and Intervention Program. Child Care Health and Development. 2011; 37: 195-202.
8. Franklin C. The neonatal nurse's role in parental attachment in the NICU. Critical Care Nurse Quarterly. 2006; 29: 81-85.
9. Thomas KA, Renaud MT, Depaul D. Use of the parenting stress index the mothers of preterm infants. Advances in Neonatal Care. 2004; 4: 33-41.
10. Chen SY, Mu PF, Hsia PC, et al. Family stress experiences of mothers during the early stages of caregiving for preterm infants at home. Nursing Research. 2000; 8: 26-36.
11. Chang ZH, Tsao CC. An investigation of the differences in parenting attitudes and parenting stress between the primary caregivers of preschool children with special needs and general children in Chiayi County. Journal of Early Childhood Education & Care. 2013; 11: 21-41.
12. Montirosso R, Provenzi L, Calciolari G, et al. NEO-ACQUA Study Group. Measuring maternal stress and perceived support in 25 Italian NICUs. Acta Paediatr. 2012; 101: 136-142.
13. Shaw RJ, Bernard RS, Storfer-Isser A, et al. Parental coping in the neonatal intensive care unit. Journal of Clinical Psychology in Medical Setting. 2013; 20: 135-142.
14. Lee YC. A study of family welfare needs of chronically respiratory dependent children and the use of welfare resources. Journal of Respiratory Therapy. 2005; 4: 35-50.
15. Erlandsson K, Fagerberg I. Mothers' lived experiences of co-care and part-care after birth, and their strong desire to be close to their baby. Midwifery. 2005; 21: 131-138.
16. Pennell C, Wittingham K, Boyd R, et al. Prematurity and parental self-efficacy The preterm parenting & self-efficacy checklist. Infant Behavior and Development. 2012; 33: 678-688.
17. Schroeder M, Pridham K. Development of relationship competencies through guided participation for mothers of preterm Infants. Journal of Obstetric Gynecologic and Neonatal Nursing. 2006; 35: 358-368.
18. Terry G, Marie A. Transition to home from the newborn intensive care unit Applying the principles of family-centered care to the discharge process. Journal of Perinatal & Neonatal Nursing. 2006; 20: 243-249.
19. Gaal BJ, Blatz S, Dix J, et al. Discharge planning utilizing the discharge train Improved communication with families. Advances in Neonatal Care. 2008; 8: 42-55.

20. Heermann JA, Wilson ME, Wilhelm PA. Mothers in the NICU: Outsider to Partner. Pediatric Nursing. 2005; 31: 176-182.
21. Weng MX, Zhou HJ. Parental issues and care during hospitalization of preterm infants. The Journal of Nursing. 2016; 63: 114-119.
22. Wu SF, Lee MC, You NJ, et al. Exploring the effectiveness of trained healthcare workers in implementing self-management programs for patients with diabetes mellitus. Journal of Taiwanese Association of Diabetes Educators. 2016; 12: 2-10.
23. Lee KF, Jiang MJ, Lin HN, et al. A project to improve the effectiveness of nursing staff in providing dietary care for patients with cirrhosis. Chang Gung Nursing. 2004; 15: 320-327.
24. Chen JY, LH. A study of the cognitive differences in the psychological needs of nursing staff and families of preterm infants. The Journal of Nursing. 2000; 47: 55-63.
25. Tsai SM, Lee SK, Hong YW, et al. Improving the completeness of health education for patients with indwelling nasogastric tube by nursing staff. Chung Shan Medical Journal. 2011; 22: 129-139.
26. Lin CF, Huang CY, Kao JC, et al. Nursing manpower shortage and retention measures in Taiwan. The Journal of Nursing. 2013; 60: 88-93.
27. Rahayu CD, Hartiti T, Rofii M. A Review of the Quality Improvement in Discharge Planning through Coaching in Nursing. Nurse Media Journal of Nursing. 2016; 6: 19-29.

Appendix A

Table A1: Standard operating procedure of care guidance for parents of preterm infants.

I. Purpose: To enable the nursing staff to follow the standards of care when implementing care instructions for preterm infants, so that the contents of the instructions can be standardized and a systematic and complete quality of care for preterm infants can be achieved.
II. Target: All parents of premature babies in the NICU.
III. Instructions
1. Introduce yourself to the parents and give them the Love Manual.
2. Each nurse is fully familiar with the content of the standard operating procedure manual.
3. Provide parents with the standard operating procedure manual during hospitalization and, when appropriate, provide them with instructional sessions to implement phased and systematic guidance.
4. Date and sign the audit record sheet in each item after the implementation of care guidance.
5. Check the content of the standard operating procedure manual for completeness and discuss, modify, and publicize the content of the manual at any time if any revision is necessary.
6. Include in-service education and training courses for new nursing faculty and cross-trained nursing faculty.