

The Effect of Providing Family Center Care Education Using Booklets on the Knowledge Level of NICU Nurses in Hospitals

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ABSTRACT: Family-Centered Care (FCC) is an important approach to care in the Neonatal Intensive Care Unit (NICU) because it actively involves families in infant care. However, the implementation of FCC still requires increased understanding among nursing staff. This study aimed to determine the effect of providing family-centered care education using a booklet on the knowledge level of NICU nurses in a hospital. Preliminary study showed that only 40% of nurses at MHJS hospital understood the concept of Family-Centered Care. The aim was to assess the effectiveness of FCC education using booklet media on the level of knowledge of NICU nurses at MHJS. This study applied a quasi-experimental design with measurements before (pre-test) and after (post-test) the intervention. Eighteen NICU nurses were included using a total sampling technique. The intervention consisted of Family-Centered Care (FCC) education delivered through a booklet. Data were collected in January 2021 using a 15-question questionnaire to assess nurses' knowledge before and after the intervention. Before completing the questionnaire, researchers provided an explanation and obtained informed consent from all respondents. The findings demonstrate that the average pre-test score was 22.6 out of 30, while the post-test score increased to 26.5 out of 30. Statistical analysis showed a significant increase in knowledge after the intervention, with a statistically significant increase in knowledge Asymp. Sig. (2-tailed); p value = 0.000 (Wilcoxon Signed Rank). Using the booklet media in FCC education significantly increased the knowledge of NICU nurses.

Keywords: Family Center Care, Booklet, Knowledge, Nurses.



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INTRODUCTION

Family-Centered Care (FCC) is a nursing approach that emphasizes partnerships between healthcare professionals and families in caring for patients, particularly infants and children in the Neonatal Intensive Care Unit (NICU) (American Academy of Pediatrics, 2012; Kusumaningrum, 2017). With the philosophy that families are not merely passive supporters but partners in decision-

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making, care, and evaluation of health care services, FCC has been internationally recognized as an important standard of care in the context of pediatric and neonatal hospitalization. (American Academy of Pediatric, 2005; Seniwati, 2023).

Neonatal hospitalization can have a significant psychological impact on both infants and parents. Neonates cared for in the NICU often experience stress due to separation from their parents, exposure to invasive procedures, unfamiliar surroundings, and uncertainty regarding their health status (Wong, 2009). Parents also experience anxiety, stress, and uncertainty, especially when communication and information received from medical personnel are inadequate (Cypress, 2012; Ludyanti, 2016; Maryam & Kurniawan, 2008).

Nurses' knowledge of the FCC concept significantly influences how FCC is implemented in the NICU. Many studies have shown that although attitudes toward FCC are generally positive, there are gaps or barriers in knowledge, perceptions, and the work environment that supports implementation. One recent cross-sectional study found that nurses' attitudes toward parental participation were significantly influenced by their knowledge of evidence-based nursing practices, institutional leadership, and working conditions in the NICU (Lim & Bang, 2023; Silalahi et al., 2021).

Previous studies have shown that structured training or education improves nurses' knowledge and attitudes toward FCC (Supartini, 2012; Supriatin, 2021). Research by Albayrak et al. in Turkey showed that after FCC training and a unit-based nursing intervention, nurses had higher attitude scores toward parental participation than before the training, and these effects were still evident one month later (Hany, 2022; Rostami et al., 2015).

Educational media, including printed materials such as booklets, have been used as part of educational interventions to improve health care workers' knowledge. The use of booklets offers advantages such as reproducible content, portability, and accessibility that do not rely on high technology. However, the effectiveness of these media often depends on the quality of the material (clear, relevant, illustrative, and appropriate language) as well as the delivery method. Comparative studies show that booklets can significantly improve knowledge, although in some cases, electronic or in-person training methods provide greater gains or longer retention (Badiei et al., 2016; Tavakoli, 2022).

Continuous improvement of NICU nurses' knowledge through easy-to-use and understandable media is essential. However, there is limited research evidence on the effectiveness of this approach, particularly booklet-based FCC education, in improving NICU nurses' knowledge in Indonesia. Therefore, improving the knowledge of NICU nurses through educational interventions, such as structured education using booklets, has the potential to be a concrete step in strengthening the implementation of Family-Centered Care (FCC) in hospitals in Indonesia. Education can not only improve cognitive knowledge but also improve attitudes, perceptions, and practices of family-centered care (Notoatmodjo, 2010).

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METHOD

This research method describes the type of research; population and sample/informants; research location; instrumentation or tools; data collection procedures; data analysis and ethical approval (Arikunto, 2010; Sugiyono, 2016).

Research Type

This study used a quasi-experimental research design with a group pre- and post-test, namely by measuring or observing respondents' knowledge before and after being given education using a booklet. This research design was used to determine the effect of providing family-centered care education using a booklet on the level of knowledge of NICU nurses, before and after being given family-centered care education.

Population and Sample/Informants

The study population was all nurses working in the NICU at the time of the study. The sampling technique used in this study was total sampling. The researcher used all members of the population as samples. The sample size was 18 people. A total sampling technique was used to include all participants who met the inclusion criteria: a Diploma 3 nursing education, working in the NICU at MHJS, and willing to provide informed consent. Nurses who were on extended leave or unavailable at the time of data collection were excluded.

Research Location

This research was conducted in the NICU Unit of MHJS. The researchers chose this location because there has been no research in the unit regarding the impact of family-centered care educational media on the knowledge levels of NICU nurses.

Instrumentation or Tools

For the independent variable, the researcher used a booklet. The booklet used in this study was created by the researcher. Family-Centered Care education was conducted to provide information about Family-Centered Care to NICU nurses using a booklet developed by the researcher. We use a questionnaire for respondent characteristics too. This questionnaire for respondent characteristics consisted of: name, age, gender, length of service, and education. For this type of data collection, the researcher collected data from respondents by answering the questions posed and writing them on a questionnaire. About Knowledge Level, we used Questionnaire. The data collection instrument used for the nurses' knowledge level variable was a questionnaire containing statements about knowledge created by the researcher. There were 15 questions. The measurement was carried out using the Gutman scale, with a score of 2 for "correct" and 1 for "incorrect." The minimum knowledge score was 15 and the maximum score was 30. Prior to the study, a questionnaire validity and reliability test was conducted in the NICU ward at MHTG with 15 nurses as respondents. The results of the validity test for the knowledge level variable from 15 statements obtained 15 valid statements with a calculated R value (0.495-0.688). Based on the results of the reliability test using Cronbach's alpha on the knowledge level questionnaire, the r alpha value was 0.891. Therefore, it can be interpreted that the knowledge level questionnaire is highly reliable.

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Data Collection Procedures

After obtaining approval from their superiors, the researcher's technical data collection procedures can be explained as follows. Respondents who will be sampled are asked to complete and sign an informed consent form. After completing the informed consent form, respondents are directed to complete a questionnaire for data collection before the intervention (pre-test) is administered. Respondents will be given an FCC educational intervention using a booklet. A pre-test will be administered before the FCC educational intervention using the booklet. A post-test will be administered after the educational intervention has been completed. After the post-test, the researcher will reward respondents and inform them that this is the final step in the research process.

Data Analysis

Data processing is carried out to prevent GIGO (garbage in, garbage out), where if garbage goes in, garbage comes out. Therefore, the data processing process consists of several stages, namely: Editing, Coding, Data Entry or processing the coding into computer software, and Cleaning.

Before conducting the T-Test, the researcher first tested the data for normality using Skewness. The data normality test uses the Z-skewness value, with the test result being -2 to +2, normally distributed. Alternatively, if the Skewness value divided by the standard error yields a value of -2 (1.96) to +2 (1.96), then the data is declared normally distributed. The frequency distribution tested was for respondent characteristics (age, gender, education level, and length of service). Due to the small sample size (<50), the Shapiro-Wilk test was used for normality testing at pre-post levels. The test result was $p=0.000$ or $p<0.05$, indicating the data distribution was not normal. Bivariate analysis was then performed using the Wilcoxon test.

Ethical Approval (Optional)

This study has considered ethical aspects in accordance with the principles of Respect for Persons, Beneficence, Non-Maleficence, and Justice as stated in the Declaration of Helsinki and the KEPK guidelines. Nurses' participation in the study was voluntary, with full information provided regarding the purpose, procedures, benefits, and the right to refuse or withdraw at any time without consequence. The educational intervention in the form of a booklet only posed minimal risks, such as fatigue when completing the questionnaire, which was minimized by providing flexible time. Respondent data were kept confidential using an anonymous code and presented in aggregate form.

RESULT AND DISCUSSION

Univariate analysis.

Table 1. Frequency distribution based on age, education and length of service of nurses

Age	Frequency	Presentation (%)
22-25 years	3	16,7%
26-30 years	7	38,9%
31-35 years	4	22,2%
36-40 years	4	22,2%
Amount	18	100%
Education	Frequency	Presentation (%)
D III	14	77,8%
S 1	4	22,2%
Amount	18	100%
Working Period	Frequency	Presentation (%)
> 5 tahun	9	50%
< 5 tahun	9	50%
Amount	18	100%

Source: Primary Data, 2024

Respondent characteristics showed that of the 18 respondents, 3 (16.7%) were nurses aged 22-25 years. 7 (38.9%) were nurses aged 26-30 years. 4 (22.2%) were nurses aged 31-35 years. And 4 (22.2%) were nurses aged 36-40 years. These data indicate that the majority of respondents were nurses aged 26-30 years. There were 14 (77.8%) nurses with a Diploma III education level. And as many as 4 (22.2%) were nurses with a Bachelor's degree. The data shows that the majority of respondents were nurses with Diploma III education level. Data obtained showed that 9 (50%) nurses had worked for more than 5 years. And 9 (50%) nurses had worked for less than 5 years. This data shows that respondents with work for more than 5 years were equal to respondents with work for less than 5 years (Dary, 2019; Institute of Medicine, 2001; Yugistyowati, 2015).

Description of the level of knowledge before and after the intervention of providing family center care education using booklet media is in table 2 below.

Tabel 2. Level of Knowledge Before and After the Family Center Care Education Intervention with Booklet Media

Variabel	Mean	Std. Deviasi	Min-Max
Level of knowledge before providing family center care education using booklet media	22,6	1,37	20-25
Level of knowledge after providing family centered care education using booklet media	26,5	1,38	22-28

The nurses' knowledge level before the intervention of providing family-centered care education using booklets was 22.6 with a standard deviation of 1.37. The highest level of knowledge was 25, while the lowest level was 20. The nurses' knowledge level after the intervention of providing

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family-centered care education using booklets was 26.5 with a standard deviation of 1.38. The lowest level of knowledge was 22, while the highest level was 28. Based on these data, it can be concluded that all nurses experienced an increase in their knowledge regarding family-centered care using booklets (Hastono & Sutanto, 2018; Hendrawati, 2017; Hockenberry & Wilson, 2011).

Bivariate analysis

Tabel 3. Differences in Nurses' Knowledge Levels Before (Pre-test) and After (Post-test)

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Tingkat Pengetahuan	Std Deviasi	Mean	Selisih	P-Value
Sebelum (Pre test)	1,37	22,6	3,9	0,000
Sesudah (Post test)	1,38	26,5		

The results of the test on the effect of providing family center care education using booklets showed that before the intervention, the knowledge of family center care education was 22.6 with a standard deviation of 1.37. After the intervention, the knowledge of family center care education using booklets increased by 26.5 with a standard deviation of 1.38. This indicates an increase in knowledge before and after the intervention. The results of the statistical test obtained a p value = 0.000 ($\alpha < 0.05$), so H_0 was rejected, meaning there was a significant influence on the provision of family center care education using booklets (Hockenberry & Wilson, 2018).

The discussion section interprets the findings of this study within the context of existing research, explores their practical implications, evaluates the strengths and limitations, and provides recommendations for future research.

Interpretation of Key Findings

Based on the research results, it was found that there was a significant influence on the provision of family center care education with booklet media on the level of knowledge of NICU nurses (p value = 0.000), namely with an average value before the intervention of 22.6 with a standard deviation of 1.37 and after the intervention of 26.5 with a standard deviation of 1.38.

Comparison with Previous Studies

This study showed that the use of booklets as an educational medium significantly increased post-test scores from an average of 75% to 88.3%. These results align with the study by Pakpahan et al., which found booklets effective in improving nurses' knowledge of infection prevention. This research aligns with research conducted by Titik Setyaningrum and Nyimas Heny Purwati (2019). The results showed that before the intervention, the family-centered care-based supportive educational system achieved a score of 74.6 with a standard deviation of 5.64. After the intervention, the score was 93.5 with a standard deviation of 3.64. This aligns with the theory of the American Academy of Pediatrics (2016). Family-centered care is an approach to planning,

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implementing, and evaluating health services based on a mutually beneficial partnership between patients, families, and healthcare providers. It was founded on the understanding that families and caregivers play a vital role in ensuring the health and well-being of patients of all ages.

According to the researchers, booklets are a first-generation printed or visual technology for learning. These booklets provide educational materials in a unique, engaging, and flexible format. Their uniqueness stems from their small size and full-color design, which fosters engagement. Their flexibility stems from their small size (smaller than a typical book), allowing them to be carried and used anywhere and anytime. This condition is in accordance with the situation in the NICU room service where NICU room nurses have a fairly high routine compared to nurses in other rooms in obtaining information about education. In addition, the hospital has established regulations that nurses are prohibited from opening smartphones while on duty, therefore booklet media is an appropriate medium for providing education in situations like this.

Similarly, FCC education using printed media can improve nurses' knowledge and behavior in providing more inclusive care. Internationally, FCC training helps nurses build partnerships with families and encourages shared decision-making, emphasizing that FCC is a core competency in pediatric nursing that requires ongoing training, especially in high-pressure environments like the NICU (Damanik & Sitorus, 2020).

The demographic profile of the participants, who were predominantly young and had diplomas, suggests they were in the early to mid-stages of professional development, making them more responsive to education. This supports the adult education theory that independent and accessible learning is more effective. Booklets can improve knowledge absorption and retention in various health care contexts.

Limitations and Cautions

This study encountered several limitations during the implementation, including: during the validity test, the researcher encountered obstacles due to a permit issue at MHJS. The research period, originally scheduled for completion in early January 2021, was extended to the end of January 2021 due to the highly routine working conditions in the NICU.

This study was conducted in only one private hospital, so the results cannot be generalized to all NICUs in Indonesia. Furthermore, this study did not evaluate long-term retention or changes in clinical behavior. Future research should use a longitudinal, mixed-methods design to evaluate long-term implementation and its impact on family-nurse relationships and patient satisfaction.

Recommendations for Future Research

Based on the limitations identified in this study, several recommendations for future research and practice are provided; Scope of the study: Future studies should include multiple NICUs across multiple hospitals, including both public and private institutions, to increase the generalizability of the findings. Study period: A longer study period can help accommodate the busy schedules of NICU staff and allow for more comprehensive implementation and observation of the

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intervention. Long-term outcome evaluation: Future studies should consider a longitudinal design to assess not only knowledge retention but also changes in behavior and clinical practice over time.

Mixed methods approach: Combining quantitative and qualitative methods can provide a deeper understanding of how Family-Centered Care education affects nurse-family interactions, patient satisfaction, and quality of care. Administrative challenges early on: Researchers should plan for potential delays in consent or approval to avoid disruptions during data collection and implementation.

CONCLUSION

The majority of respondents in this study were characterized by age, gender, education, and length of service. Seven respondents (38.9%) were aged 26–30 years. The highest level of education for nurses was a Diploma III (14 respondents (77.8%). Nine respondents (50%) had the same work period of >5 years and the other nine respondents had the same work period of <5 years. Before the intervention, providing family-centered care education using booklets, all 18 respondents (100%) had a knowledge level of 22.6 with a standard deviation of 1.37. After the intervention, providing family-centered care education using booklets, all 18 respondents (100%) had a knowledge level of 26.5 with a standard deviation of 1.38. There was a significant effect of providing family-centered care education using booklets on the knowledge level of nurses at the NICU MHJS after the intervention, with a p-value of 0.000 ($\alpha < 0.05$).

Education using booklets has been shown to significantly improve NICU nurses' knowledge of Family-Centered Care. In the context of complex and critical neonatal care, educational interventions like this are crucial. Routine training using booklets can empower nurses to more effectively engage families in infant care, improve the quality of care, and strengthen the relationship between health care providers and families. Hospitals and nursing educational institutions should adopt this cost-effective educational strategy to encourage widespread implementation of FCC in Indonesia.

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