Efficacy of Breastfeeding Education on Mother’s Knowledge in Neonatal Intensive Care Unit (NICU)

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INTRODUCTION

- The Baby Friendly Hospital Initiative (BFHI) support breastfeeding in antenatal and postnatal services worldwide and have shown to have achieved significant improvements in breastfeeding rates and practices wherever it was applied.\(^{11}\)

- The government of Malaysia and, in particular, the Ministry of Health has already done an excellent job in promoting breastfeeding.
**PROBLEM STATEMENTS**

**Staffing**
- Due to lack of staff to educate and counsel individual mothers on breastfeeding and lack of continuity of this process at the community and clinic level.
- There were mothers who have reported receiving conflicting advice about breastfeeding in the NICU.
- Numerous difficulties with initiating breastfeeding, ranging from concern about the infant's condition to lack of education and resources within the NICU.

**NICU ENVIRONMENT**
- Mother and infant are separated because of illness, or employment.
- Even though there are separated, it is important to empower parents in caring for their infants.
- Where every mother needs to learn how to express milk to feed her infant and maintain lactation in the event of separation.

In NICU with low birth weight infants, eventual breastfeeding may depend on early and effective support with milk expression.

The environment of NICU identified as a barrier in effective delivery of breastfeeding education.

**The Researcher Experience**
- Mothers really need consistent information and support by nurses during hospitalization.

However, with the workload and closely observation for infants in NICU will cause delays in providing health education on breastfeeding.

Hence, the evaluation of parents’ knowledge in breastfeeding their child during hospitalization and the readiness of parents to continue with breastfeeding before being discharged is essential.
OBJECTIVE OF THE STUDY

To identity the demographic data

To evaluate the efficacy of breastfeeding on the mother’s knowledge in the NICU
METHODOLOGY

**Study design**
- Quasi-experimental by using different breastfeeding education strategies, individual versus group counseling sessions using pre and post structured knowledge questionnaires

**Sample size**
- Using sample calculation for testing a hypothesis (clinical trials or clinical intervention studies): Effect size to determine the sample size and Al-Therapy Statistics formula to determine purposive sample size.
- Expected effect size was 50% study power of 80%.
- Sample size was estimated 68 (34 per arm).

**Criteria**
- Inclusion criteria:
  - mother of infants with gestational age 32 weeks to term, Birth weight of >2.2 kg, Mother of infants who are expected to undergo a hospitalisation duration of one week or more and mother who decided to breastfeeding.
- Exclusion criteria:
  - Mother of the infant with congenital abnormalities, surgery, mother with major medical compilations and medical illness.
METHODOLOGY

**Group**
- Control group n=30
- Intervention group n=25
- To minimize bias and contamination, respondents selected in separated month.
- First month for control group
- Second month for intervention group.

**Instruments**
- The tools were validated and deemed reliable with Cronbach's alpha of above 0.7 for the 47 items of intelligence component on breastfeeding.
- Knowledge scoring

**Ethical approval**
- Ethics and Medical Research, Universiti Teknologi Mara: UiTM600-IRMI(5/1/16)REC/171/16 and UKMMC:UKM PPI/111/8/JEP-2016-577
- Consent from respondent
- All participants are verbally informed about the aim and objectives of the study.

**Statistical Analysis**
- Statistical package for the Social Science (SPSS) version 23.0
- Descriptive analysis for analysis demographic data and means score for mother's knowledge pre and post education.
Figure 3.2: Framework of study phase - Data collection

**PHASE 1**

- **Exclusion Criteria**
- **Parents’ of infant admitted to NICU**

**PHASE 2**

- **Control Group n=30**
- **PRE Education Questionnaire (Instrument Tool B)**
- **Normal Routine Breastfeeding Information**
  1) Distribute pamphlet of breastfeeding to parents (Instrument A)
  2) Q&A session on pamphlet
  3) *verbal HE from ward staff - individual session*

**PHASE 3**

- **POST Education Questionnaire (Instrument Tool B)**
- **Recording of infants weight on day 1, week 2, 3, 4**
  - Lost of follow up = 0

**PHASE 4**

- **Data Analysis**

**Week 1**

**Intervention group n=25**

**PRE Education Questionnaire (Instrument Tool B)**

**Intervention**

1) Parents’ require to attend one (1) breastfeeding counseling session (each session 30-45 minutes) conducted by breastfeeding counselor
2) Breastfeeding flips cards (Instrument C) will be used during the session as a teaching guideline.
3) Q&A session.

**POST Education Questionnaire (Instrument Tool B)**

**Recording of infants weight on day 1, week 2, 3, 4**

- Lost of follow up = 0

**Key Note**

- **Instrument A** - Breastfeeding Pamphlet
- **Instrument B** - Questionnaire booklet
- **Instrument C** - Breastfeeding flips cards

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Conceptual Framework
Nicklin’s (1997) practice-centred supervision model

1. Problem Identification
   - Identify which one is the suitable method of delivery for health education for NICU parents, receive enough information of breastfeeding.

2. Objective setting
   - Environment - Instrument tools - Induction & exclusion criteria

3. Planning
   - Choose the instruments/tools and delivery method of health education which is suitable for NICU setting

4. Implementing and action
   - Routine health education method using pamphlet
   - Breastfeeding counseling session with counselor

5. Evaluation and analysis
   - Data analysis of knowledge level and moderating variables

6. Practice Analysis
   - Floor knowledge level of breastfeeding among parents admitted NICU and moderating variables
RESULTS AND DISCUSSION
## 1. DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th>Variables</th>
<th>Control (n=30)</th>
<th>Intervention (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>8 (26.7)</td>
<td>10 (40.0)</td>
</tr>
<tr>
<td>Working</td>
<td>22 (73.3)</td>
<td>15 (60.0)</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>2 (6.7)</td>
<td>2 (8.0)</td>
</tr>
<tr>
<td>Diploma</td>
<td>18 (60.0)</td>
<td>11 (44.4)</td>
</tr>
<tr>
<td>Degree and above</td>
<td>10 (33.3)</td>
<td>12 (48.0)</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>30 (100.0)</td>
<td>22 (88.0)</td>
</tr>
<tr>
<td>Buddha</td>
<td>0</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td><strong>Number of life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 children</td>
<td>17 (56.7)</td>
<td>17 (68.0)</td>
</tr>
<tr>
<td>3-4 children</td>
<td>12 (40.0)</td>
<td>7 (28.0)</td>
</tr>
<tr>
<td>&gt;5 children</td>
<td>1 (3.3)</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td><strong>Gravida</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primigravida</td>
<td>10 (33.3)</td>
<td>2 (8.0)</td>
</tr>
<tr>
<td>Multigravida</td>
<td>20 (66.7)</td>
<td>23 (92.0)</td>
</tr>
</tbody>
</table>
2. MOTHER VARIABLES : NEVER HAD ATTENDED BREASTFEEDING CLASS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Control(n=30)</th>
<th>Intervention(25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Breastfeeding experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No experience</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>Less than 6 month</td>
<td>13</td>
<td>43.4</td>
</tr>
<tr>
<td>12 month</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>24 month</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Attended breastfeeding class before (NO)</td>
<td>30</td>
<td>100.0</td>
</tr>
</tbody>
</table>
3. MOTHER’S KNOWLEDGE PRE AND POST BREASTFEEDING EDUCATION

Level of breastfeeding knowledge

<table>
<thead>
<tr>
<th>Score</th>
<th>Control (n=30)</th>
<th>Intervention (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Pre education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>27</td>
<td>90</td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Excellent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Post education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Excellent</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Pre education, none of the participants from either groups got an excellent score. This may be due to the participants of both groups having not attended any breastfeeding classes during their antenatal period.

For post education, both control and intervention groups scored excellent with 30 (100%) and 25 (100%), respectively. None of the participants in either groups got an unsatisfactory or good score.
### Comparing the difference mean of knowledge pre and post breastfeeding education for control and intervention group

<table>
<thead>
<tr>
<th></th>
<th>Pre education</th>
<th>Post education</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control (n=30)</strong></td>
<td></td>
<td></td>
<td>20.30</td>
<td>2.96</td>
<td>-29.30</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Pre education</td>
<td></td>
<td>40.96</td>
<td>1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intervention (n=25)</strong></td>
<td></td>
<td></td>
<td>22.16</td>
<td>1.28</td>
<td>-70.48</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Post education</td>
<td></td>
<td>40.12</td>
<td>0.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shows there is a difference in the mean of knowledge pre and post breastfeeding education for control and intervention groups. 1.86 (pre-education) ; 0.84 (post-education) p-value at 0.001.

Alina et.al (2009) and it is available in both English and Malay version. This available tool are valid and reliable for assessing knowledge of breastfeeding with Cronbach’s alpha of above 0.7 for the 47 items of knowledge component on breastfeeding.
4. INFANT’S VARIABLE

<table>
<thead>
<tr>
<th>variables</th>
<th>Control (n=30)</th>
<th>Intervention(n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Gestational age</td>
<td>38.13</td>
<td>2.047</td>
</tr>
</tbody>
</table>

Shows that there is not much difference in the mean of baby gestational age for both groups. The control group had a mean of 38.13 (SD 2.047) and the intervention group had a mean of 37.6 (SD 2.255).
5. INFANT WEIGHT GAIN PATTERN FOLLOWED BY WEEK
DISCUSSION
Level knowledge

• Score of knowledge level among mothers in control group showed excellent and it slightly higher significant difference although both groups’ scoring excellently after receiving their postnatal breastfeeding education.
• This shows that in a different environment such NICU, a different approach for health education, guidance and support for breastfeeding education is needed.
• Mothers psychological status during nursing care also influences milk production.

Section knowledge

• Even though, both group had an excellent scoring;
• control group had a low scoring in several sections of the questionnaires.
• 1. breast milk expression
• 2. duration of feeding,
• 3. complimentary feeding
• 4. Management of breast engorgement.
• It is important to start expressing breast milk soon after delivery.
• As suggested that expressing breast milk 4 or more times per day especially during the first week and night time will help increase milk production.

Infant weight gain pattern

• With different method of teaching session, therefore, all mothers with difficulties in establishing and maintaining milk production should be offered focused individualized support and access to breastfeeding support during the infants whole hospital stay.
• Nurses’ support is predictive of success with breastfeeding.
• Nurses must provide the tools to foster breastfeeding in the complex NICU environment and emphasise to mothers more regarding the technique of manual expressing of breast milk.
CONCLUSION

NICU is a medically complex environment, and parents need guidance on how to function in their role with the environmental constraints. – The environment is a strong predictor of choice for the success or failure of breastfeeding education.

NICU should also focus on the important role of nurses and focus on individualized breastfeeding education Modifications to the Individual Care Plan (ICP) with a breastfeeding protocol.

Evidence based Practice
Practice analysis through individual approach one to one breastfeeding education session now practicing in Neonatal Intensive Care Unit (NICU) at UKMMC

Lactation counselors must make a decision to initiate and continue delivering breastfeeding education.

Mothers in the NICU rely on nurses to provide accurate, complete and consistent information on breastfeeding their high-risk infant even though they can explore the information from the internet sources.
REFERENCE


THANK YOU