Original Article

Comparison of LATCH Scores between Mothers' Breastfeeding Teaching Done by Registered and Practical Nurses during the Immediate Postpartum Period; A Randomized Controlled Trial

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Background: Breastfeeding teaching is essential during the postpartum period. Recently, teaching by registered nurses has been shown to be insufficient. To complete the breastfeeding teaching workload, practical nurses might be a good choice to help resolving this problem.

Objective: The objective is to compare LATCH scores between breastfeeding taught by registered nurses and practical nurses during immediate postpartum.

Materials and Methods: This is a randomized controlled trial. The postpartum mothers with no delivery complications were randomly assigned to teaching by a registered or practical nurse. Thirty minutes of breastfeeding teaching was taught by a registered nurse in the first group and by a practical nurse in the second group. LATCH scores were assessed before and after breastfeeding instruction. The demographic data and LATCH scores were collected, analyzed and compared between both groups.

Results: Data from 250 postpartum mothers were available for analysis, 125 in the teaching by a registered nurse group and 125 from teaching by a practical nurse group. The baseline characteristics of both groups were similar. There were statistically significant differences in LATCH scores between the before and after breastfeeding teaching in both groups. There were no significant differences of the before and after teaching means between teaching by registered nurse and teaching by practical nurse groups were found.

Conclusion: Breastfeeding instruction by registered nurses had no significant differences from those taught by practical nurses when the nurses' functional competency was controlled in a proper training setting.

***Keywords*:** Breastfeeding teaching, Registered nurse, Practical nurse

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Breast milk is the most appropriate infant feeding[(1)]. Although breastfeeding is natural, teaching and practicing breastfeeding is essential[(2)]. Following delivery, mothers were encouraged to initiate breastfeeding. Then, the mothers were taught and practiced latching and breastfeeding positioning at the postpartum ward prior to discharge. If the mothers were able to practice latching and settled in appropriate breastfeeding positions, they would have the confidence to breastfeed their infants. The opportunity to continue breastfeeding after discharge would increase[(3-5)].

The role of maternal breastfeeding care is primarily a nurse responsibility[(6)]. However, the nurses' workloads are increased and there is a shortage of registered nurses. In Thailand, the registered nurse (RN) is a nurse who graduated from a four-year nursing program of a university or college and must pass a national licensing examination. The numbers of graduated and licensed nurses per year were often insufficient to meet the healthcare market's needs. Practical nurses (PN) are a choice to help decreasing the registered nurse's workload and there are more available. The practical nurse is a nurse who has graduated from one-year nursing program and works under a registered nurses' supervision. Breastfeeding instruction is a specific competency. However, the authors believe that the practical nurse who passes an appropriate breastfeeding course and has practiced with

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experience can teach mothers effectively. The authors choose LATCH score as a comparative outcome because it is a breastfeeding assessment tool which is accepted and can predict breastfeeding at six weeks postpartum[7]. Thus, the authors are interested in the comparison of LATCH scores with the mother's breastfeeding instruction done by the registered nurses compared with the practical nurses.

Meterials and Methods

Setting

The present study was performed in the Nakhon Nayok province, a rural area in the central part of Thailand. The data was collected from July, 2014 to June, 2015 at the HRH Princess Maha Chakri Sirindhorn Medical Center which is a Baby Friendly hospital. Breastfeeding education is a routine practice in the postpartum ward. The one-hour course in breastfeeding education which includes latching is taught on the first day postpartum. One staff member would teach a group of 3 to 5 mothers. The mothers are encouraged to stimulate their infants for 8 to 12 feeding per day. The mothers and their infants are discharged if they have shown no complications at the second day postpartum.

Procedure and collection of material

The present study is a randomized control trial. Randomization was done using a computer-generated list with block of five methods. After the allocation sequence was generated, the researcher stated teaching by a registered nurse or a practical nurse in sequentially numbered, sealed envelopes. These envelopes were kept with the nurses who opened each envelope when new participant mothers were recruited from the postpartum ward. The mothers were grouped by the breastfeeding instruction staff into two groups; teaching-by-registered-nurse (teaching-by-RN) and teaching-by-practical-nurse (teaching-by-PN) groups. Thirty minutes prior to breastfeeding teaching, the mother-infant dyads of both groups were assessed by LATCH scores. The nurses who assessed LATCH scores did not know the breastfeeding instruction groups. In the first group, the mothers were taught breastfeeding benefits and received a mannequin demonstration on latching and breastfeeding positioning with a hands-off technique taught by a registered nurse in small groups (3 to 5 persons per group)[8]. Thirty minutes of teaching time was divided into sessions of five minutes for breastfeeding benefits, ten minutes for latching and breastfeeding positioning and fifteen minutes for practicing latching and positioning. In the second group, mothers were taught the same content by a practical nurse. Both registered and practical nurses, must attend an UNICEF/WHO, 20-hour breastfeeding course, had six-months experience in breastfeeding instruction and must pass a researcher's assessment. LATCH scores were assessed again at six hours after breastfeeding instruction by the same nurses who assessed the mother-infant dyads prior to the teaching. The demographic data collected included age, educational level, income, occupation, route of delivery, body mass index, breastfeeding experience and duration of breastfeeding intention. The mean differences of LATCH scores were analyzed.

LATCH scores

The LATCH mnemonic scores were assessed by Latching on, Audible swallowing, Type of nipples, Comfort and Help necessary for the mother to hold the baby to breast. The criteria of 'latching on' scores are; two if the baby grasps the breast, tongue is positioned down and forward, lips are flanged and the baby has rhythmic suckling. One is scored for baby's repeated attempts, the mother must hold her nipple in the baby's mouth or must stimulate the baby to suck; zero is given when the baby is too sleepy, reluctant or no latch is obtained. The criteria of 'audible swallowing' scores are as; two for spontaneous or frequent, audible swallowing. A score of one for a few audible swallowing with stimulation, and zero for no swallowing. The criteria of 'type of nipples' scores are; two for everted after stimulation, one for flat, and zero for inverted nipples. The criteria of 'comfort' scores are set as; two for soft, tender and intact nipples (no damage); one for filling, small blisters or bruises of the breasts or the mother complains of pinching or mild to moderate discomfort of her nipples or breasts. The criteria of 'assistance requirement' scores are; two for no assistance required from the staff (the mother can position or hold the baby); one for minimal assistance, teaching on one side and the mother utilizes the other breast or the staff helps and the mother takes over the feeding independently; and zero for full assistance or the staff must hold the infant to breast[9].

There were two nurses who assessed the LATCH scores. The nurses must have six-months of experience in LATCH score assessment and passed a researcher's orientation and assessment. LATCH score assessment nurses would not be informed of the mothers' breastfeeding instruction groups.

Inclusion criteria

Postpartum women who had deliveries without complications (i.e. multiple pregnancies, preeclampsia, antepartum hemorrhage and preterm labor) were recruited. Their infants had birth weights of more than 2,500 grams and were born without complications. The mothers had suffered no acute postpartum hemorrhages and had no contraindications to breastfeeding.

Exclusion criteria

Mothers whose infants were diagnosed with galactosemia were excluded from this study.

Sample size

The authors set a mean difference of 25% between the teaching by RN and PN groups. The authors used 0.05 of α error, 0.95 of power and effect size = 0.5. The calculated sample size numbered 105 cases in each group. The subjects were totaled with twenty additional cases for data loss. The total samples collected were 125 for each group.

Ethical considerations

The present study was approved by The Ethics committee of the Srinakharinwirot University, Faculty of Medicine (SWUEC/E-059/2557) and registered with Thai Clinical Trials Registry (registration number TCTR 20180317001).

Statistical analysis

Demographic data were reported in means and percentages. We used the independent t-test to compare the mean of maternal age, income, body mass index, duration of breastfeeding intention and mean difference of LATCH score between teaching by RN and PN groups. The data of education, occupation, route of delivery and breastfeeding experience were analyzed by Chi-square. LATCH score comparisons of the before and after breastfeeding teaching were analyzed by a paired t-test. A *p*-value less than 0.05 considered statistically significant. Statistical analysis was performed using SPSS software (version 23.0, SPSS Incorporated).

Results

The postpartum women who were enrolled in our research project totaled 250 cases, 125 cases in teaching by RN group and 125 cases in teaching by PN group. A flow chart of the number of participants is shown in Figure 1. The mean of mothers' ages was 27.9$\pm$5.7 years. The mother's education was mostly below the high school level (66%). The percentage of cesarean sections was 44%. The mean body mass index was 23.8$\pm$4.7 kg/m^2 which is considered to be within normal ranges. There were no significant differences in the demographic data between the two groups. The details of demographic data are shown in Table 1.

There were statistically significant differences in the LATCH scores between the before and after teaching in both groups. The details of the LATCH scores compiled before and after breastfeeding teaching were shown in Table 2. Before-and-after mean difference of teaching-by-RN and teaching-by-PN groups were 2.4$\pm$1.0 and 2.3$\pm$1.0, respectively. There were no significant differences in the before and after mean difference between both teaching groups (p = 0.570).

Discussion

The demographic data of both groups were similar in the randomization. These factors included; mothers' ages, educational level, income, occupation, route of delivery, body mass index, breastfeeding experience and intention for the duration of breastfeeding that can affect breastfeeding practices and outcomes[10-16]. There were statistically significant differences in LATCH scores between the before and after breastfeeding teaching in the two groups. In both teaching groups, the instructors used a hands-off technique demonstration. It revealed that breastfeeding instruction could help mothers to improve latching and breastfeeding positioning as exhibited in the study of Ingram et al[8].

The before and after teaching mean differences of LATCH scores between both teaching groups had no significant differences. It showed that a practical nurse could be an effective breastfeeding instructor after a proper training program. Breastfeeding instructor's requirements were attending an UNICEF/WHO 20-hour breastfeeding course and 6-months of breastfeeding teaching experience for this study. The UNICEF/WHO 20-hour course is an effective tool for improving health professionals' breastfeeding knowledge, attitudes, and practices as seen from a previous study[17]. Although registered and practical nurses had different knowledge backgrounds, the UNICEF/WHO 20-hour breastfeeding course would help to adjust the registered and practical nurses' breastfeeding knowledge for similarity. In a shortage of registered nurses, we suggest that breastfeeding teaching by qualified practical nurse may be an alternative way of resolution. However, the instructor's experience is an important factor for breastfeeding teaching. The 6-month on the job training experience was adequate from the results of this study. Further research is needed to investigate the proper criteria of the on the job training experience requirements for breastfeeding instructors.

The strength of this study is that it is a randomized controlled trial. The breastfeeding instructor's training requirements and mother's breastfeeding teaching courses were clarified. The nurses who assessed LATCH scores were

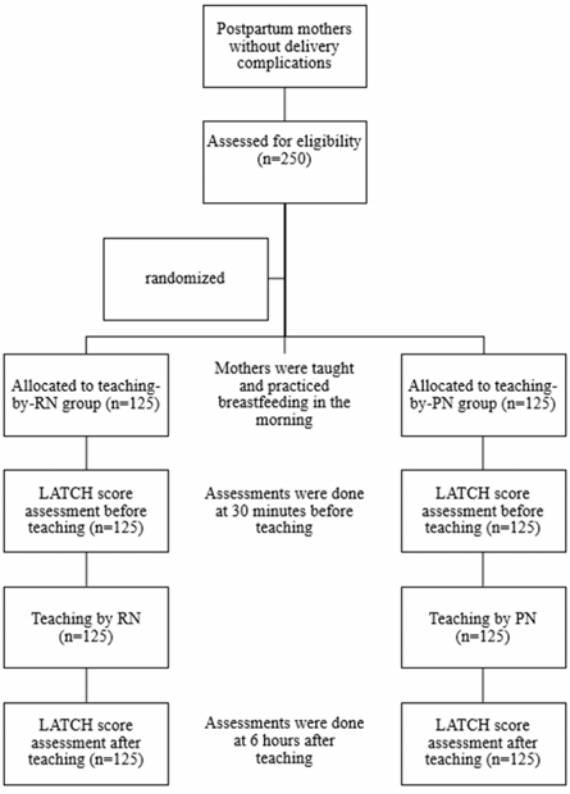

Figure 1. The flow diagram of participants through the study.

Table 1. Demographic data of teaching-by-RN and teaching-by-PN groups

Mothers' data	Teaching-by-RN group (n = 125)	Teaching-by-PN group (n = 125)	*p*-value
Age (years)	28.5±0.5	27.3±0.5	0.165
Education, n (%)			
High school and lower	86 (68.8)	79 (63.2)	0.157
Bachelor's degree and higher	39 (31.2)	46 (36.8)	
Income (baht/month)	26,706.4±18,906.4	23,212.0±12,637.2	0.138
Occupation, n (%)			
Housewife or self-employed	60 (48.0)	62 (49.6)	0.800
Employee	65 (52.0)	63 (50.4)	
Route of delivery, n (%)			
Vaginal delivery	67 (53.6)	73 (58.4)	
Cesarean section	58 (46.4)	52 (41.6)	0.445
BMI (kg/m^2)	23.4±4.4	24.3±5.0	0.462
Breastfeeding experience, n (%)			
Had	51 (40.8)	47 (37.6)	0.775
Did not have	74 (59.2)	78 (62.4)	
Duration of breastfeeding intention (month)	8.1±4.1	8.2±6.1	0.094

RN = registered nurse, PN = practical nurse

Table 2. LATCH scores before and after breastfeeding teaching

LATCH score	Before teaching	After teaching	*p*-value
Teaching-by-RN group	5.8±0.9	8.1±0.9	<0.001
Teaching-by-PN group	6.2±1.0	8.4±0.9	<0.001

blind to decrease bias. Although a registered nurse and a practical nurse were set for breastfeeding teaching to control reliability, the generalizations were limited. A greater number of teaching staff might be necessary for further research.

Conclusion

Breastfeeding instruction by registered nurses had no significant differences from teaching by practical nurses when their functional competencies were controlled in a proper training setting. In the shortage of nurses, the assignment of breastfeeding teaching for practical nurses might be an alternative way to complete the essential workload as properly trained practical nurses could teach mothers about effective latching and positioning.

What is already known on this topic?

Breastfeeding teaching is essential during the postpartum period.

The LATCH score is a breastfeeding assessment tool which is accepted and can predict breastfeeding at six weeks postpartum.

The numbers of graduated and licensed nurses per year were often insufficient to meet the healthcare market's needs.

What this study adds?

Breastfeeding instruction by registered nurses had no significant differences from teaching by practical nurses when their functional competencies were controlled in a proper training setting.

In the shortage of nurses, the assignment of breastfeeding teaching for practical nurses might be an alternative way to complete the essential workload.

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Potential conflicts of interest

The authors declare no conflict of interest.

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