

A Comparative Study on Confidence in Newborn Care and Postpartum Fatigue of Puerperal Mothers in Rooming-in vs. Non-Rooming-in Groups

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Abstract

This descriptive survey research elucidates the confidence in newborn care and the postpartum fatigue of puerperal mothers in rooming-in and non-rooming-in groups, and investigates relevant factors with intent to provide reference data needed to perform proper nursing intervention for the confidence in newborn care and the postnatal fatigue. A total of 159 subjects (43 in a rooming-in group vs. 116 in a non-rooming-in group) staying in a university hospital and a women's hospital in Uijeongbu City within 48 hours after giving birth were selected. The confidence in newborn care was measured with the Revised Self Confidence Scale, whilst the postpartum fatigue was measured with the Fatigue Continuum Form. Demographic information and obstetric characteristics were collected with a self-reporting questionnaire survey. In short, based on the Revised Self Confidence Scale, comfort & safety ($t=2.876$, $p=.005$), feeding ($t=2.281$, $p=.024$), infant's behavior ($t=2.395$, $p=.018$), hygiene control ($t=2.978$, $p=.003$), health & ill-ness ($t=3.646$, $p<.001$) and confidence in newborn care showed significant total scores ($t=2.997$, $p=.003$). Based on the Fatigue Continuum Form, the physical, psychological, and neurosensory fatigue scores and the total fatigue score did not show any statistical significance in each area ($t=1.169$, $p=.244$)($t=1.941$, $p=.054$)($t=1.863$, $p=.064$)($t=1.897$, $p=.060$). The present findings can be applied as the reference data conducive to correcting the myth among puerperal mothers that rooming-in will increase the postnatal fatigue and supporting the benefits of rooming-in.

Keywords: Puerperal mothers, newborn care, postpartum (postnatal) fatigue, rooming-in, non-rooming-in

1. Introduction

The declining population is one of the most controversial issues emerging in Korea. Indeed, a decreasing population is significantly important in that it might threaten the existence of the nation. According to the data from the National Statistics Office, the total fertility rate in 2013 was 1.19 persons in stark contrast to 1.23 in 2010, which is a trend that is likely to continue. Thus, it is most important to pay constant attention to fertility

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rates, childbirth and postnatal care for puerperal mothers [1]. Yet, going through the pregnancy and giving birth to a child, puerperal mothers have to cope with the burden of acquiring maternal roles for raising their newborn babies in addition to their own physical, psychological and neurological recovery [2]. As the major physical symptom of puerperal mothers during the postnatal period, fatigue hinders them from the functional recovery and successful adjustment to maternal roles [3].

A regular assessment of puerperal mothers' fatigue is reported to enhance their sense of well-being and to help perceive the need for family support[4]. Despite the postpartum fatigue issues, most puerperal mothers physically take care of their infants. When puerperal mothers lack in knowledge and skills relevant to baby care, they become anxious about and have much trouble carrying out their maternal roles [5]. Mercer referred to maternal role attainment as puerperal mothers' having confidence in their roles, establishing proper parenting behavior for their sense of identity and performing roles seamlessly, and viewed the confidence in infant care as the best indicator for the maternal role attainment [6]. Maternal roles as well as childbirth are not acquired naturally but learned by practically caring for infants [7]. Therefore, the most effective place and time for puerperal mothers to learn the newborn care is the rooming-in where puerperal mothers stay with and feed their newborn babies during the prenatal period [8].

Rooming-in enables puerperal mothers to observe how their babies are doing at all times, feel composure psychologically, get accustomed to babies' crying or behavior, relieve unnecessary concerns about newborn babies' condition, and undertake new-born care and breast feeding. Also, rooming-in prevents puerperal mothers from being unnaturally separated from their babies, increases mother-infant attachment via early contact, and allows other family members to interact closely with newborn babies [9]. Rooming-in lets puerperal mothers and babies come in close contact with each other during the postnatal period, facilitating the breast feeding, exerting positive effects on postpartum mother-newborn interactions, and thus is best for not only babies but also puerperal mothers [10].

Despite such benefits, rooming-in is less widely used in Korea and most Asian countries than in Western countries because of the custom that restricts puerperal mothers' physical activities in favor of a complete rest. Therefore, their preference for and satisfaction with rooming-in is low [11]. Rooming-in and non-rooming-in have hardly been investigated. Previous studies on puerperal mothers' confidence in new-born care and postnatal fatigue are mostly focused on postpartum depression and labour-related fatigue. Hence, studies on rooming-in and non-rooming-in of puerperal mothers are hard to find [2,5].

In this context, the present study inquired into the confidence in newborn care and postnatal fatigue of puerperal mothers in a rooming-in group versus a non-rooming-in group so as to provide reference data for postpartum nursing intervention, as well as improve the awareness of postpartum rooming-in among puerperal mothers. To that end, specific goals were set as below.

- 1) To identify subjects' demographics and obstetric postpartum characteristics.
- 2) To identify and compare the confidence in newborn care of puerperal mothers in rooming-in vs. non-rooming-in groups.
- 3) To identify and compare the postnatal fatigue of puerperal mothers in rooming-in vs. non-rooming-in groups.

2. Method

This descriptive survey research investigated the confidence in newborn care and postpartum fatigue of puerperal mothers in rooming-in and non-rooming-in groups, and explored relevant factors to provide reference data for improving the awareness of rooming-in and for postpartum nursing intervention.

2.2. Subjects

159 puerperal mothers, who gave birth in 2 general hospitals in Uijeongbu City Gyeonggi-do between July 1 and September 30, 2013, were selected as subjects based on the following inclusion criteria:

- 1) Puerperal mothers who gave birth to babies at 36-plus weeks of pregnancy and whose newborn babies weighed 2000gm and more.
- 2) Puerperal mothers who developed no health issues during the pregnancy, delivery and postnatal period.
- 3) Puerperal mothers whose newborn babies had no issues during the prenatal period or delivery, *e. g.*, congenital anomalies or prenatal fetal hypoxia.
- 4) Puerperal mothers who fully understood the objective and method of this study and signed the informed consent form.

2.3. Instruments

2.3.1. Confidence in Newborn Care

The instrument used here was the one adapted by Park M.S. based on the 13 items of the Self Confidence Scale originally developed by Pharis [12, 13]. This instrument is comprised of 38 question items, *viz.* 5 items about comfort & safety, 6 items about infant's behavior, 10 items about feeding, 4 items about hygiene control, 5 items about bathing and diapering, and 8 items about health & illness. Here, each item was rated on a 5-point scale as Very unconfident (1), Unconfident(2), Average(3), Confident(4) and Very confident (5). Higher scores indicated being more confident in new-born care. At the time of developing the instrument, Park M.S. (1991) reported Cronbach $\alpha=.95$. As for the reliability of the measure of confidence in newborn care here, Cronbach $\alpha=.97$.

2.3.2. Postnatal Fatigue

To measure the postnatal fatigue of the subjects during the pregnancy, delivery and postpartum period, the Fatigue Continuum Form developed by Pugh and translated by Song J.E. was used [14, 15]. To measure the postpartum fatigue of puerperal mothers, this instrument comprised of 10 items about physical fatigue, 10 items about psychological fatigue, and another 10 items about neurosensory fatigue. Each item was rated on a 4-point scale: Not much (1), Occasionally (2), Often (3) and Very often (4). The total fatigue scores ranged between 30 ~ 120 points. Higher scores indicated more severe postnatal fatigue levels. At the time of developing the instrument, Song J.E.(2001) reported Cronbach's $\alpha =.92$. Here, as for the reliability of the measure of postpartum fatigue, Cronbach's $\alpha=.92$.

2.4. Data Collection

Data was collected from puerperal mothers who gave birth in 2 general hospitals in Uijeongbu City Gyeonggi-do over a period of three months between July 1 to September 30, 2013. Based on the assumption that puerperal mothers' postpartum fatigue would be highest in the course of physical recovery and psychological adjustment, data was collected within 48 hours postpartum. Respondents spent about 15 minutes on the questionnaire survey. The authors received consent forms from nursing departments in both hospitals. The authors visited the mothers' rooms, informed them of the objective and received signed consent forms prior to the questionnaire survey.

The sample size required for this study was calculated with G*power 3.0. It was found that minimum 109 subjects were needed with the effect size of .015, the signif-

ificance level of .05, and the power of .80. This study used a convenience sample consisting of 43 rooming-in puerperal mothers and 116 non-rooming-in puerperal mothers. In total, 159 puerperal mothers participated in the study and were included in the analysis without any dropouts.

2.5. Data Analysis

Collected survey responses were statistically analyzed with SPSS WIN 18.0. Subjects' demographics and obstetric characteristics were found in terms of real numbers and percentages. For the homogeneity test of the demographics and obstetric characteristics in the rooming-in and non-rooming-in groups, test was used. To comparatively analyze the intergroup differences in postnatal discomfort, confidence in newborn care and postpartum fatigue, χ^2 -test and independent sample t-test were used.

2.6. Ethical Consideration

As part of the ethical consideration for participants in data collection, the authors fully informed them of the objective and procedure of the study. Upon receiving the written consent forms from subjects, the authors informed them of the questionnaire prior to the survey. Anonymity was ensured. It was clarified that response sheets would be used only for the purpose of this study and that subjects had the right to withdraw the survey of their own volition. Collected data was kept in a place with a double lock. It was promised that the data would be kept for three years before disposal. The measurement instruments were used with the original authors' permission.

3. Results

3.1. Demographics

In total, 159 subjects, consisting of 43 in the rooming-in group (27.1%), and 116 in the non-rooming-in group (72.9%), participated in the survey. As for demographics, age ($\chi^2=1.272$, $p=.736$), education ($\chi^2=2.573$, $p=.429$) and monthly income ($\chi^2=7.003$, $p=.072$) did not show significant differences between the rooming-in and non-rooming-in groups, which supported the homogeneity of the two groups (Table1). As for the mean age in the rooming-in group, 27 (62.8%) of the puerperal mothers were in their 30s. Also, 28 (65.1%) of the mothers graduated from universities. As for the monthly income, 19 (44.2%) of the mothers earned 2M ~ 3M Won followed by over 3M in 39.5%. In the non-rooming-in group, 79(68.1%) mothers were in their 30s, accounting for the highest percentage in age distribution. 74 (63,8%) mothers graduated from universities, accounting for the highest percent-age in education. As for the monthly income, 48(41.1%) of mothers earned 2M~3M Won.

Table 1. Homogeneity Test for Demographics of Puerperal Mothers in Rooming-in vs. Non-rooming-in Groups (N = 159)

	Rooming-in (N = 43)		Non-rooming-in (N=116)		χ^2	p	
	N	%	N	%			
Age	10s	0	0.0	1	0.9	1.272	.736
	20s	14	32.6	29	25.0		
	30s	27	62.8	79	68.1		

	40s	2	4.7	7	6.0		
Education	Primary	1	2.3	0	0.0	3.833	.429
	Middle	0	0.0	3	2.6		
	High	13	30.2	36	31.0		
	University	28	65.1	74	63.8		
	Graduate course	1	2.3	3	2.6		
Monthly income (Won)	None	0	0.0	4	3.4	7.003	.072
	1-2M	7	16.3	6	5.2		
	2.01-3M	19	44.2	48	41.4		
	3M+	17	39.5	58	50.0		

3.2. Obstetric and Postpartum Characteristics

As for the homogeneity test results regarding obstetric characteristics of puerperal mothers in rooming-in and non-rooming-in groups, pregnancy planning ($\chi^2=.519$, $p=.473$), types of delivery ($\chi^2=2.573$, $p=.109$), and awareness of rooming-in ($\chi^2=1.206$, $p=.272$) showed no significant differences between the two groups. As for the homogeneity test results regarding postpartum characteristics of puerperal mothers, breast feeding ($\chi^2=1.571$, $p=.210$), abdominal cramp following childbirth ($\chi^2=3.964$, $p=.109$), episiotomy discomfort ($\chi^2=5.418$, $p=1.44$) and C-section discomfort ($\chi^2=4.564$, $p=.207$) showed no significant differences between the two groups. By contrast, in terms of sufficient sleep ($\chi^2=14.188$) and breast engorgement ($\chi^2=9.638$, $p=.022$), the inter-group difference was significant, which was attributable to the rooming-in group's lack of sleep (Table2).

Table 2. Homogeneity Test for Obstetric Characteristics of Puerperal Mothers in Rooming-in vs. Non-rooming-in Groups (N=159)

		Rooming-in (N = 43)		Non-rooming-in (N=116)		χ^2	P	
		N	%	N	%			
P R E N A T A L	Pregnancy planning	Yes	25	58.1	60	51.7	.519	.473
		Types of delivery	18	41.9	56	48.3		
	Types of delivery	Vaginal delivery	28	65.1	59	50.9	2.573	.109
		Breast feeding	15	34.9	57	49.1		
	Awareness of rooming-in	Yes	34	79.1	100	86.2	1.206	.272
		No	9	20.9	16	13.8		
Breast feeding	Yes	42	97.7	107	92.2	1.571	.210	
	No	1	2.3	9	7.8			
Sufficient Sleep	Yes	6	14.0	54	46.6	14.188	<.001	
	No	37	86.0	62	53.4			
Postnatal abdominal cramp	Not uncomfortable at all	1	2.3	8	6.9	3.964	.265	
	Average	9	20.9	36	31.0			

O S T N A T A L		A bit uncomfortable	27	62.8	63	54.3		
		Very uncomfortable	6	14.0	9	7.8		
		Not uncomfortable at all	12	27.9	38	32.8		
	Breast engorgement	Average	9	20.9	39	33.6	9.638	.022 *
		A bit uncomfortable	22	51.2	32	27.6		
		Very uncomfortable	0	0.0	7	6.0		
		Not uncomfortable at all	1	3.3	14	17.9		
	Episiotomy discomfort	Average	3	10.0	13	16.7	5.418	.144
		A bit uncomfortable	16	53.3	30	38.5		
		Very uncomfortable	10	33.3	21	26.9		
		Not uncomfortable at all	0	0.0	6	10.0		
	C-section discomfort	Average	2	13.3	14	23.3	4.564	.207
		A bit uncomfortable	10	66.7	23	38.3		
		Very uncomfortable	3	20.0	17	28.3		

3.3. Puerperal Confidence in Newborn Care in Rooming-in vs. Non-rooming-in Groups

As for the total scores of puerperal confidence in newborn care compared between rooming-in and non-rooming-in groups, the rooming-in group's mean was 113.00(±17.861), whereas the non-rooming-in group's mean was 102.09(±21.230). This finding indicated the rooming-in group's confidence in newborn care proved significantly higher than that of the non-rooming counterpart ($t=2.997$, $p=.003$). In view of comfort & safety, the rooming-in group's mean was 14.26(±2.290), whereas the non-rooming-in group's mean was 12.78(±3.070), indicating a significant inter-group difference ($t=2.876$, $p=.005$). In feeding, the rooming-in group's mean was 29.56(±5.124), whereas the non-rooming-in group's mean was 27.32(±5.628), indicating another significant inter-group difference ($t=2.281$, $p=.024$).

Concerning the infant's behavior, the rooming-in group's mean was 18.93(±2.987), whereas the non-rooming-in group's mean was 17.34(±3.965), indicating a significant inter-group difference ($t=2.3956$, $p=.018$). In terms of the hygiene control, the rooming-in group's mean was 11.77(±2.191), whereas the non-rooming-in group's mean was 10.34(±2.853), indicating a significant inter-group difference ($t=2.978$, $p=.003$). In light of the health & illness, the rooming-in group's mean was 24.84(±4.514), whereas the non-rooming-in group's mean was 21.78(±4.753), indicating a significant inter-group difference ($t=3.646$, $p<.001$). Concerning the bathing and diapering, the rooming-in group's mean was 13.65(±3.394), whereas the non-rooming-in group's mean was 12.54(±3.868), indicating an insignificant difference ($t=1.656$, $p=.100$) Table 3.

Table 3. Confidence in Newborn Care in Rooming-in vs. Non-rooming-in Groups (N=159)

	Rooming-in (N=43)		Non-rooming-in (N=116)		<i>t</i>	<i>p</i>
	Mean	S.D.	Mean	S.D.		
Total score	113.00	17.861	102.09	21.230	2.997	.003
Comfort & safety	14.26	2.290	12.78	3.070	2.876	.005
Feeding	29.56	5.124	27.32	5.628	2.281	.024
Infant's behavior	18.93	2.987	17.34	3.965	2.395	.018
Hygiene control	11.77	2.191	10.34	2.853	2.978	.003
Bathing & diapering	13.65	3.394	12.54	3.868	1.656	.100
Health & illness	24.84	4.514	21.78	4.753	3.646	<.001

3.4. Postnatal Fatigue in Rooming-in vs. Non-rooming-in Groups

As for the postnatal fatigue of puerperal mothers compared between the rooming-in and non-rooming-in groups, the rooming-in group's total mean was 97.440(±12.6331), whereas that of the non-rooming-in group's was 92.77(±14.2070), indicating no significant inter-group difference ($t=1.897$, $p= .060$). Regarding the physical fatigue, the rooming-in group's mean was 28.81(±5.981), whereas the non-rooming-in group's mean was 27.51(±6.349). In terms of the psychological fatigue, the rooming-in group's mean was 34.40(±3.923), whereas the non-rooming-in group's mean was 32.47(±6.030).

In view of the neurosensory fatigue, the rooming-in group's mean was 34.23(±4.116), whereas the non-rooming-in group's mean was 32.78(±4.437). Taken together, no statistically significant inter-group difference was found in physical, psychological and neurosensory fatigue ($t=1.169$, $p=.244$)($t=1.941$, $p=.054$)($t=1.863$, $p=.064$) Table 4.

Table 4. Postnatal Fatigue in Rooming-in vs. Non-rooming-in Groups (N=159)

	Rooming-in (N = 43)		Non-rooming-in (N=116)		<i>t</i>	<i>p</i>
	Mean	S.D.	Mean	S.D.		
Total score	97.44	12.633	92.77	14.207	1.897	.060
Physical fatigue	28.81	5.981	27.51	6.349	1.169	.244
Psychological fatigue	34.40	3.923	32.47	6.030	1.941	.054
Neurosensory fatigue	34.23	4.116	32.78	4.437	1.863	.064

4. Conclusion

Puerperal mothers' confidence in newborn care showed a significant difference between the rooming-in and non-rooming-in groups with the total mean scores being 113.00 and 102.09, respectively. Also, statistically significant inter-group differences were found in feeding, infant's behavior, hygiene control and health & illness. These findings are

ascribable to the rooming-in where mothers can watch and learn how nurses take care of babies, practically experience newborn care, get used to babies' behavior and physiology and simple care activities, and come to feel confident in a wider range of care activities. These findings are consistent with Kim E. S. who found the rooming-in group's confidence in newborn care was relatively high [16]. In Kim's study, among 6 items of the confidence in newborn care, the rooming-in group's confidence was significantly higher in two areas only, *i.e.*, illness and infant's behavior, which disagrees with the present findings. Such a difference in the scope of confidence between two studies may be explained by the difference in the environment and nurse training of hospitals running the rooming-in programs. Based on these findings, it seems desirable to provide mothers with lots of informative and practical chances to personally experience newborn care activities during the rooming-in period so as to enhance their confidence [16].

Meanwhile, concerning the puerperal mothers's confidence in newborn care, a statistically significant difference was found in breast feeding between the rooming-in and non-rooming-in groups. This finding agrees with a previous report that the rooming-in group was more confident in breast feeding [16] or another finding that the rooming-in group's breast feeding rate was high because it was easy to try breast feeding as the newborn babies were right next to their mothers, it was possible for mothers to observe infants' behavior or to see that babies were crying in hunger and promptly breast feed them, and thus to have confidence in adjusting the frequency and amount of feeding [17]. Therefore, to raise the confidence in newborn care, using postpartum rooming-in should be considered. Yet, given no significant inter-group difference was found in 'bathing and diapering', it is necessary to provide some practical, demonstrative, informative and supportive programs so that mothers can feel confident in bathing and diapering.

No statistically significant inter-group difference was found in puerperal mothers' postnatal fatigue. This finding is in contrast to a previous report that breast-feeding puerperal mothers felt more physical fatigue than the bottle-feeding counterparts [18,19]. Yet, the present finding seems consistent with the report that the rooming-in group's fatigue scores were marginally higher, which implied that rooming-in was often less preferred due to the psychological burden over puerperal mothers' being with new-born babies when they had to take a sufficient rest, and due to the concern over physical fatigue resulting from sleep disturbance [15]. Hence, exploratory studies are needed to find out the types and extent of discomfort from the perspective of rooming-in puerperal mothers and to develop some measures for their discomfort.

As the subjects for this study were limited to puerperal mothers in 2 hospitals in Gyeonggido, attention should be paid before generalizing the present findings. Also, this study failed to reflect the differences in rooming-in operating hours, which warrants further studies on differences in puerperal mothers' attitude toward newborn babies and confidence in newborn care between 24-hour and 12-hour daytime rooming-in programs. The present study verified the confidence in newborn care and post-natal fatigue of puerperal mothers in rooming-in versus non-rooming-in groups, and notably provided reference data for improving the awareness of rooming-in and for postpartum nursing intervention. The present findings and limitations suggest the following.

First, considering that rooming-in is avoided due to the burden of fatigue, although its importance is well known and that puerperal mothers and babies need come into close contact with each other during the postpartum period, it is necessary to systematically investigate and promote the positive effects of postpartum rooming-in on the mothers' confidence in newborn care back at home.

Second, given the even marginally higher postnatal fatigue of rooming-in mothers than the non-rooming-in subjects, factors causing the fatigue associated with rooming-in as well as relevant nursing intervention approaches need be explored to reduce the discomfort of rooming-in puerperal mothers and ultimately contribute to increasing the fertility rate.

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