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Relationship between Postpartum Depression and Breastfeeding Adaptation among Lactating Mothers

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Abstract

In this study, the occurrence rate of postpartum depression of breastfeeding mothers and relation between postpartum depression and breastfeeding adaptation are to be investigated. Mothers with 5-7 month old infants who participated the Healthy Breastfed Baby Contest in Daegu Gyeongbuk, Korea and mothers who visited 1 women's obstetrics hospital as outpatients were selected as research subjects in which a total of 110 subjects who agreed to participate the research were included. Data analysis was conducted using descriptive statistics, independent t-test, one-way ANOVA and Pearson's correlation coefficients with SPSS v. 23.0 program. As result of the research, the occurrence risk of postpartum depression among breastfeeding mothers measured by EPDS (Edinburgh Postnatal Depression Scale) was shown to be 41.8% (cutting point 9/10) and significant negative correlation was shown between postpartum depression and breast feeding adaptation ($r=-.38$, $p<.001$). Also, postpartum depression was significantly higher when there were more children ($F=3.33$, $p=.039$) and exclusive breastfeeding showed to have significantly high breast feeding adaptation ($t=3.45$, $p=.001$). Therefore, breast feeding adaptation between the mother and child increases and continuous breast feeding can take place if the postpartum depression of breastfeeding mothers after birth is early discovered and managed.

Keywords*: Postnatal, Child, Lactating, Relationship, Rate*

1. Introduction

Breastfeeding is the most ideal method of supplying nutrients that are required in the development and growth of infants [1] in which it is not only outstanding for nutrients, but is also beneficial for infants and breastfeeding mothers. Infants who receive breastfeeding have low occurrence rate of infectious diseases [2], sudden infant death syndromes, type 2 diabetes mellitus, leukemia, overweight, and obesity [3], and even have high IQ [4]. Regarding breastfeeding mothers, uterine contraction is helped after birth risk of postpartum bleeding, breast cancer, ovarian cancer, and hip fracture occurrence are reduced [3].

The World Health Organization (WHO) recommends exclusive breastfeeding until 6 months after birth because these advantages of breastfeeding and supplement food is recommended while continuing breastfeeding until 24 months or longer [5]. However, the duration of breastfeeding in OECD nations is becoming shorter in which half of infants after 3 months of birth receive exclusive breastfeeding, but it reduces under 25% at 6 months [6]. In Korea, the breastfeeding rate showed the lowest level after 2000 and improved in the recent 10 years, but exclusive breastfeeding rate after 6 months of birth is rapidly decreasing [7].

Breastfeeding is the interaction between the mother's behavior of breastfeeding and infant's behavior of taking the breast in which demands of both the mother and infant must be satisfied for continuous breastfeeding to take place [8]. Thus, the mother and infant are both

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important subjects of breastfeeding that effective and continuous breastfeeding can be expected through breastfeeding adaptation between the mother and infant.

Meanwhile, postpartum depression occurs within 1 year right after birth and is classified into postpartum blues, postpartum depression, and postpartum psychosis depending on the severity of depression symptoms. Rapid change of postnatal hormones, lack of sleep, burden and worry on nurturing are the causes of postpartum depression in which frequent change of mood, loss of appetite, sleeping disorder, low energy, severe anxiety, decrease of memory and concentration, lethargy, thoughts of suicide, and other depression symptoms are experienced. When these symptoms are severe, the mother becomes indifferent to the baby and negative emotions or thoughts to harm that the baby occur [9]. Like this, postpartum depression interrupts the interaction the mother and infant [10] that it is expected that this will have negative influence on breastfeeding which is the interaction between mother's behavior of breastfeeding and infant's behavior of taking the breast [8].

It is shown in previous studies on postpartum depression and breastfeeding that postpartum depression lowers breastfeeding rates [11], reduces breastfeeding duration [12] [13], and makes breastfeeding practice difficult [14]. Also in literature analysis researches, it was reported that postpartum depression had negative influence on breastfeeding, reduced the duration of breastfeeding, and increased the difficulty of breastfeeding to lower the level of breastfeeding self-efficacy [15]. Especially, it was reported that postpartum depression already occurs before breastfeeding stopped [12] and that the inverse relationship between postpartum depression symptoms and breastfeeding was stronger when the postnatal period was shorter [11]. The significance of managing postpartum depression in early states to maintain the duration of breastfeeding of mothers after birth is known. The interaction process between the mother and infant including emotional exchange with the baby, breastfeeding confidence, and becoming close with the baby is important to maintain breastfeeding [8] in which it is necessary to investigate the relation between breastfeeding adaptation and postpartum depression.

In this study, the relation between postpartum depression and breastfeeding adaptation on breastfeeding mothers with 5-7 month old infants is investigated to provide basic data to prepare nursing intervention plans for effective breastfeeding.

2. Method

2.1. Research Design

This research is a descriptive research study to investigate the relation of postpartum depression and level of breastfeeding adaptation of breastfeeding mothers after birth.

2.2. Research Participants

Mothers with infants who participated the Healthy Breastfed Baby Contest and mothers who visited 1 women's obstetrics hospital in Daegu as outpatients were selected as research subjects. G-power 3.1.2 program was used to calculate the number of samples in which a number of 107 sample subjects were calculated as result of substituting effect size=. 35, significance level α=. 05, and test power (1-β)=. 90 standards to ANOVA. 120 copies were distributed and all collected considering dropout rate of 10%, but 10 copies with insufficient responses were excluded for a total of 110 copies to be analyzed. For specific standards of subject selection, they 1) were mothers breastfeeding 5-7 months old infants, 2) able to communicate, 3) understand the research purpose and have agreed to participate the survey, and the excluded subjects 1) had postpartum complications, 2) had taken drugs due to internal diseases, and 3) had past history of depression.

2.3. Research Tools

2.3.1. Postpartum Depression: The Korean-version Edinburgh Postnatal Depression Scale that Kim adapted from the Edinburgh Postnatal Depression Scale (EPDS) developed by Cox et al. (1987) [16] was used for postpartum depression [17]. A self-report type evaluation tool was used with 10 items each assessed by 0-3 points. Tool contents include depression, anxiety, guilt, and thought of suicide during the past 1 week. Inverse items were inversed coded in which higher scores mean higher level of depression. Depression selection cut off scores of the EPDS score were various proposed, but the standard of 3 classifications suggested from the Ministry of Health and Welfare were applied in this study (0-8 scores: normal, 9-12 scores: need counseling, 13 scores or higher: severe condition) [18]. The original tool showed reliability of Cronbach's α=.87 and the reliability of this study showed Cronbach's α=.832.

2.3.2. Breast-feeding Adaptation: The Breast Feeding Adaptation Scale (BFAS) developed by Kim Sun Hee (2009) [8] based on the adaptation model by Roy was used for breastfeeding adaptation. A total of 27 items are composed of 8 subordinate ranges in which the contents include emotional exchange with baby, breastfeeding confidence, sufficient amount of breast, breastfeeding ability of baby and development, becoming close with baby, maintaining amount of breast, and receiving support. The original tool showed reliability of Cronbach's α=.82 and the reliability of this study showed Cronbach's α=.924.

2.4. Data Collection

Data collection in this research took place from August 2015 to October 2015 and questionnaire was used subject to breastfeeding mothers with 5-7 month old infants in which the researcher personally collected the data. First, permission was gained from the Gyeongsangbukdo Nurse Association that hosts the Healthy Breastfed Baby Contest in Daegu Gyeongbuk to explain and receive agreement on the research purpose and method to breastfeeding mothers corresponding to the selection standards to conduct the survey after receiving signatures on the questionnaire. Also, permission was gained from the hospital director and head nurse of 1 women's hospital located in Daegu to explain and receive agreement on the research purpose and method to conduct the survey after receiving signatures on the questionnaire. The time consumed for the survey was 15-20 minutes and the survey was collected after completion.

2.5. Data Analysis

SPSS/Win 23.0 program was used on the collected data and the results of analysis are as follow. General, obstetric characteristics, postpartum depression, and breastfeeding adaptation of the subjects calculated the frequency, percentage, mean and standard deviations. Then, the difference of postpartum depression and breastfeeding adaptation according to general and obstetric characteristics of the subjects were analyzed by t-test and one-way ANOVA. Pearson correlation method was used to investigate the relation between postpartum depression and breastfeeding adaptation.

2.6. Ethical Consideration

This research was performed after receiving approval by the Kyungnam University Research Ethics Center (1040460-A-2015-031). Before the survey investigation, the research explained to the mothers about the research purpose, research procedure, consumed time, anonymity, confidentiality, and that the survey can be withdrawn anytime during the research period. Afterwards, signature was received on the questionnaire to perform the survey.

3. Results

3.1. General Characteristics

The average age of the subjects was 33.4 years old, the most common religion was Buddhism with 41 subjects (37.3%), and college or university occupied most of the educational level with 97 subjects (88.2%). Most were housewives with 68 subject (60.9%) in which 38 subjects had average monthly income of 2.01-3 million won (46.9%). 63.6% mothers gave vaginal delivery and the gender of children was each 50% for males and females. Current number of children was most common with 1 child in 48 subjects (43.6%) and 87 subjects showed exclusive breastfeeding (79.1%) (Table 1).

Table 1. General and Obstetric Characteristics of Subjects (N=110)

Variable	Categories	n(%)	M(SD)
Age(years)			33.41(3.18)
Religion	Christians	15(13.6)	
	Catholics	12(10.9)	
	Buddhist	41(37.3)	
	None	42(38.2)	
Education status	High School	8(7.3)	
	College or University	97(88.2)	
	Graduate degree	5(4.5)	
Occupation status	Employed	25(22.7)	
	Housewife	67(60.9)	
	Maternity leave	18(16.4)	
Monthly income	100 <	7(8.6)	
(10,000 won)*	101-200	18(22.2)	
	201-300	38(46.9)	
	301-400	16(19.8)	
	401 ≥	2(2.5)	
Type of delivery	Vaginal delivery	70(63.6)	
	Cesarean section	40(36.4)	
Neonatal gender	Male	55(50.0)	
	Female	55(50.0)	
Number of children	1	48(43.6)	
	2	53(48.2)	
	3	9(8.2)	
Duration of breastfeeding	5 months	44(40.0)	
	6 months	40(36.4)	
	7 months	26(23.6)	
Type of feeding	Exclusive breastfeeding	87(79.1)	
	Mixed Feeding	23(20.9)	
Experience of breastfeeding	Yes	86(78.2)	
education	No	24(21.8)	

3.2. Differences of Postpartum Depression and Breastfeeding Adaptation according to General and Obstetric Characteristics

Level of postpartum depression according to general and obstetric characteristics were shown to have significant difference according to number of children (F=3.33, *p*=.039) and duration of breastfeeding (F=3.47, *p*=.034) in which level of breastfeeding adaptation showed significant difference in type of breastfeeding (F=3.45, *p*=.001). Thus, postpartum depression was higher when there were more children and longer duration of breastfeeding. Exclusive breastfeeding showed high breast feeding adaptation (Table 2).

Table 2. Differences of Postpartum Depression and Breastfeeding Adaptation According to General Characteristics

Variables	Categories	Postpartum depression			Breastfeeding Adaptation		
		Mean(SD)	t or F	*p*	Mean(SD)	t or F	*p*
Religion	Christians	9.07(4.16)	.242	.867	109.00(10.97)	.745	.528
	Catholics	9.42(6.43)			106.92(14.66)		
	Buddhist	8.54(5.36)			103.07(13.34)		
	None	8.17(4.81)			104.88(15.26)		
Education status	High School	9.50(3.50)	.227	.797	108.50(15.34)	.280	.756
	College or University	8.44(5.25)			104.67(13.68)		
	Graduate degree	9.40(4.33)			105.60(18.90)		
Occupation status	Employed	8.72(3.75)	.058	.943	104.44(13.09)	.595	.553
	Housewife	8.43(5.74)			104.31(14.98)		
	Maternity leave	8.83(4.17)			108.28(10.82)		
Monthly income (10,000 won)	100 <	9.29(4.53)	.642	.634		.421	.793
	101-200	9.06(3.90)					
	201-300	7.61(5.04)					
	301-400	7.81(4.00)					
	401 ≥	11(1.41)					
Type of delivery	Vaginal delivery	8.30(5.34)	-.71	.475	105.57(14.72)	.57	.566
	Cesarean section	9.03(4.62)			103.98(12.55)		
Neonatal gender	Male	8.71(5.44)	.29	.766	103.56(14.87)	-1.07	.285
	Female	8.42(4.74)			106.42(12.89)		
Number of children	1	7.38(5.08)	3.33	.039	104.25(13.59)	.135	.874
	2	9.13(5.03)			105.70(14.92)		
	3	11.56(3.84)			104.78(10.30)		
Duration of breastfeeding	5 months(a)	7.05(4.988)	3.47	.034	106.91(12.22)	.706	.496
	6 months(b)	9.75(4.88)		(b)>(a)*	103.48(16.80)		
	7 months(c)	9.31(5.08)			104.08(11.75)		
Type of feeding	Exclusive breastfeeding	8.28(5.08)	-1.15	.250	107.24(13.56)	3.45	.001
	Mixed Feeding	9.65(5.06)			96.48(12.11)		
Experience of breastfeeding education	Yes	8.65(5.02)	.34	.734	105.84(13.25)	1.20	.230
	No	8.25(5.39)			101.96(16.08)		

3.3. Postpartum Depression

Postpartum depression of breastfeeding mothers showed a mean of 8.5 scores in which the normal range (0-8 scores) was 53.6%, the borderline (9-12 scores) was 22.7%, and the seriousness range (13 scores ≥) was 23.6% (Table 3).

Table 3. Subject Classification by the EPDS Scores

Variable	EPDS scores	n(%) / Mean(SD)
Postpartum Depression		8.56(5.08)
Normal	0-8 scores	59(53.6)
Borderline	9-12 scores	25(22.7)
Seriousness	13 scores ≥	26(23.6)

3.4. Correlation among Variables

Postpartum depression of breastfeeding mothers showed to have significantly negative correlation with breastfeeding adaptation (r=-.38, p<.001), and showed to have significantly positive correlation with the number of children (r=-.24, p=.011) and duration of breastfeeding (r=-.19, p=.038). Also, age showed to have significantly positive correlation with the number of children (r=-.38, p<. 001) and the number of children showed to have significantly positive correlation with the duration of breastfeeding (r=-.38, p<.001).

Table 4. Correlation among Variables

	Age	Number of children	Duration of breastfeeding	Breastfeeding adaptation	Postpartum depression
Age	1	.38**	.16	.05	.04
Number of children		1	.38**	.03	.24*
Duration of breastfeeding			1	-.09	.19*
Breastfeeding adaptation				1	-.38**
Postpartum depression					1

** p < .01, * p <.05

4. Discussion

In this research, the level of postpartum depression and breastfeeding adaptation is checked subject to breastfeeding mothers with 5-7 month old infants in which exclusive breastfeeding rate is rapidly decreasing and the correlation between these variables are to be investigated. The average of breastfeeding mothers in this research was 33.4 years old in which it corresponds to the age range of 30-34 years old which is the most common age range of birth in Korean mothers [19]. Average score of postpartum depression of breastfeeding mothers was shown to be 8.6 points. Comparing postpartum depression measured in other research by EPDS, premature mothers showed 9.75 points [20] when leaving the hospital and postnatal care center attending mothers showed 11.98 points to show somewhat lower depression points compared to existing researches. Regarding this result, it is considered that the subjects of this research who mothers with 5-7 month old mothers show different results from the mothers after 1-2 weeks of birth who have less physical restoration and rapid change of hormones. There are differences according to researches on the cutting points of postpartum depression, but Han, Kim and Park (2004) [21] said that setting cutting points to 9/10 points standard is proper to find all depressions including light depressions. In this research, the results showed Normal (0-8 scores) 53.6%, Borderline (9-12 scores) 22.7%, Seriousness(13

scores ≥) 23.6% according to Ministry of Health and Welfare. The postpartum depression cutting point was 12 points or higher in which 17.8 - 30% of the mothers in this research were classified in the seriousness range [20] [22]. Like this, measurement of postpartum depression by EPDS varies depending on subjects, measured period, and cutting points that absolute comparison is difficult.

As result of investigating the difference of postpartum depression scores according to the demographic and obstetric characteristics of the breastfeeding mothers, postpartum depression scores were shown to be higher when current number of children was higher. Breastfeeding women sense happiness and joy in the process of breastfeeding, but breast engorgement, tiredness, and lack of sleep are experienced. Also, anxiety of raising children occurs [23]. Moreover, more physical or mental conflicts are exposed in which depression increases when there are young children to take care of. Therefore, for mothers who have other children other than the breastfeeding infant, postpartum depression should be selected beforehand for management. Also, high postpartum depression scores in longer duration of breastfeeding can be understood in the same context. It was shown in qualitative research on actual breastfeeding experience of breastfeeding mothers that they feel miserable because they have no time to take care of themselves and mentally become depressed because they feel like a shabby mother who only breastfeeds [23]. Therefore, families including spouses must understand the mental condition of mothers due to breastfeeding and must try to give practical help.

Looking into the difference of postpartum depression according to type of breastfeeding, mix feeding showed high postpartum depression scores but did not show significant differences. However, the research by Lee, Eu, and Moon Eun [24] subject to mothers after 1 week of birth reported that artificial feeding showed significantly higher postpartum depression. Other difference of postpartum depression according to general characteristics were not shown, but previous researches reported that there was significant difference in monthly income [24], educational level [25], [26], age [26], job condition [26], and etc.

Also, looking into the difference of postpartum depression according to general characteristics and obstetric characteristics, breastfeeding mothers showed high breastfeeding adaptation scores. This is considered to be because morning sickness or pain from birth are experience, but emotional exchange with the baby is sensed through the behavior of breastfeeding to have bonding [27] and shows higher breastfeeding adaptation than mothers who mix feed. However, actual condition researches on breastfeeding show substantially increasing trend of mixed feeding of breastfeeding and powdered milk and half of the reason of stopping breastfeeding was shown to be due to ‘lack of amount of breastfeeding’ [19] in which low breastfeeding adaptation can be expected. As cesarean section, hospital delivery, and postnatal care center usage is increasing, rooming-in care is rarely operated and they return home after 1-2 weeks of birth [19] in which sufficient contact between the mother and infant is lacked. Due to this reason, operation of rooming-in systems must be activated and opportunities to increase contact between the mother and infant should be expanded to increase breastfeeding adaptation such as positive emotional exchange, breastfeeding confidence, and sufficient amount of breastfeeding in the current situation of the increase of months of infants and decreasing breastfeeding rate [19].

It was shown that there were no other significant differences between the breastfeeding adaptation and general characteristic variables. Direct comparison was not possible because of the rare number of previous researches on breastfeeding adaptation, but job condition among general characteristics that influence duration of breastfeeding is reported [28] and employment shows substantially high percentage as a reason for stopping breastfeeding in actual condition research on breastfeeding [19] in which the relation with breastfeeding adaptation should not be overlooked.

The correlation between postpartum depression and breastfeeding adaptation showed significantly negative correlation. Thus, it means it is difficult for mothers depressed after birth to continue breastfeeding due to difficult breastfeeding adaptation [29]. Research by

Jeong and Kim [30] also showed high postpartum depression in non-breastfeeding mothers (OR=1.62) and postpartum depression was shown as a prediction variable that influences the identity of maternal identity that is a significant aspect of maternal adaptation Like this, postpartum depression has overall negative influence on the role of mothers after birth and correlation with infants is considered to be difficult for females with postpartum depression [23]. Therefore, postpartum depression after birth should be diagnosed in prior and managed to increase breastfeeding rate and continuous, effective breastfeeding.

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