



## Effects of a Maternal Self-Efficacy Promotion Program on Maternal Confidence and Mother-Infant Interaction\*

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= Abstract =

**Purpose:** The purpose of this study was to examine the effect on maternal confidence and mother-infant interaction of a maternal self-efficacy promotion program for Korean primiparas. **Method:** This study was non-equivalent quasi-experimental research with a control group selected by purposive sampling. Based on Bandura's (1986) self-efficacy theory, the research team developed the maternal self-efficacy promotion program. The program included achievement experiences, verbal persuasion, and vicarious experiences. The program was provided through face-to-face teaching at the time of discharge, counseling sessions over the telephone, and a home visit. The mothers also learned about parenting skills using a videotape developed by the research team. Sixteen primiparas were recruited to the experimental group at one hospital in Kyongi province, and fifteen primiparas who were matched according to socioeconomic status were recruited to the control group at a postpartum care center in the same province. **Results:** Mothers in the experimental group demonstrated significantly higher maternal confidence and mother-infant interaction than those in the control group. **Conclusion:** A maternal self-efficacy promotion program appears to be an effective nursing intervention for parenting of first-time mothers in Korea.

Key words : Parenting, Self-efficacy, Maternal confidence, Mother-infant interaction

### Introduction

Becoming a parent is one of the most important milestones in adult life. Mothers need to acquire various parenting skills to help their infants reach optimum levels of growth and

development, and attachment with their infants is one important skill that would help them to reach that goal. First-time mothers have substantial difficulties in adjusting to lifestyle changes after the baby's birth (Brooten et al., 1988; Lee, 1988). If a new mother encounters unpredicted maternal tasks,

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she demonstrates lower confidence regarding her ability to manage the tasks (Gross & Tucker, 1994). That is, when the mother is overwhelmed due to lack of experience, knowledge, and skills as a mother (Lee H.K., 1992; Mercer, 1985; Park, 1991), and when the child imposes many tasks and burdens, the mother experiences a decline in maternal confidence (Gross, Rocissano, & Roncoli, 1989; Teti & Gelfand, 1991). This phenomenon is more pronounced now as most young married couples in Korea in recent decades have adopted the lifestyle of a nuclear family and first-time mothers are left alone to attend to all matters related to infant care as well as household chores. Therefore, helping them gain maternal confidence after the birth of a child is very important.

Maternal roles not only include daily infant caring activities but also provision of emotional satisfaction through positive interactions with the infant (Lee E.S., 1992). When these two components are in balance, the mother can attain maternal confidence and a feeling of satisfaction (Lee Y.E., 1992). However, when this balance fails, the mother loses maternal confidence, cannot establish a positive mother-infant relationship, and imposes a negative influence on the baby's wellness and development.

Understanding infants' signals and acquiring parenting skills to integrate appropriate behaviors in infant care are essential for first-time mothers to effectively perform the maternal role (Mercer, 1985). Helping these mothers to attain self-efficacy may enhance the likelihood of adopting new behaviors and maintaining attained behaviors. Self-efficacy is a personal recognition about accomplishing tasks and managing stressful situations, as well as a belief in ability to accomplish successfully specific behaviors and attitudes (Bandura, 1986).

In Korea, the major focus of the prenatal and postnatal parenting education programs in clinic settings is the physical care of the newborn and management of simple health problems. These programs do not help build maternal confidence as they lack the focus on positive parenting behaviors that promote mother-child interaction. This study aimed to examine the effect of a self-efficacy promotion program on maternal confidence and mother-infant interaction. The following hypotheses were tested.

- Mothers who received the maternal self-efficacy promotion program would demonstrate higher maternal confidence than the control group.
- Mothers who received the maternal self-efficacy promotion

program would demonstrate higher mother-infant interaction during infant feeding than the control group.

## Method

This study employed nonequivalent control group posttest-only design to examine the effects of the maternal self-efficacy promotion program on the maternal confidence and mother-infant interaction of the primipara group. The program was developed by researchers based on Bandura's theory (1977). To prevent potential diffusion of the treatment that could occur if we tested the experimental and control groups in the same hospital, the control group was recruited from a different setting, a postpartum care center in the same province. The purposive sampling was done for control group, matching in the following areas: primiparas, types of planned pregnancy and delivery, and economic status. Postpartum care centers are where mothers with means go after they are discharged from the hospital. Their primary focus is providing rest to mothers while they tend to the care of infants. Because we did not use a randomized sampling method, we analyzed homogeneity of the general characteristics of the subjects.

## Sample

Experimental and control groups were primiparas who did not have prenatal or postpartum complications and who delivered full-term live singletons with no major congenital anomalies. Sixteen subjects who agreed to participate in the intervention during the immediate postpartum period were recruited to an experimental group at one hospital in Kyongi province. Fifteen subjects who were matched according to socioeconomic status and who agreed to participate in the control group were recruited at a postpartum care center in the same province.

## Intervention

The experimental group received the maternal self-efficacy promotion program for a month. That program was offered three times. The first session was face-to-face education in the morning on the second day after delivery, and the second and third ones were during a telephone call and a home visit

within the first three weeks and four weeks after their discharge from the hospital, respectively. The program used a 10-page booklet and a 15-minute videotape, both developed by the researchers based on Bandura's strategies.

This self-efficacy promotion program had three components: performance accomplishment, vicarious experience, and verbal persuasion (Bandura, 1986). The intervention focused on increasing the mother's belief that she could successfully perform infant care and on helping the mother learn how to care for her baby and recognize her infant's states and cues using videotapes and a booklet. Videotapes included scenes of infant states and cues and a mother's responses to an infant's cues. The booklet included questions and answers about infants' characteristics and mothers' coping strategies handling delicate infant temperaments. The research team consulted an expert in child development (the head of the Child Development Research Center) to establish the content validity of this program.

Self-efficacy Promotion Program  
for the Experimental Group

Strategies	Approaches
Performance accomplishment	Face-to-face education using the booklet that included questions and answers about the care of the baby (10 pages). (2nd day after delivery)
Vicarious experience	Face-to-face education using the videotape that included scenes of infant states and cues and mother's responses to infant cues (15 minutes). (2nd day after delivery)
Verbal persuasion	Counseling over the telephone (during 3 wks after discharge) and during the home visit (during 4 weeks after discharge).

Through counseling sessions, mothers were encouraged to use the video or the booklet as a guide for responding appropriately to their infant's signals and to actively interact with them. The questions mothers asked during the counseling sessions (telephone and home visit) were tape recorded with their consent. Home visit took about one hour, and telephone counseling lasted about 10 minutes. A nurse who was trained by the research team about infant states and cues and maternal responses to infant cues implemented the program to the experimental group. The control group responded to the posttest only; however, they received an information booklet of infant care and mother-infant interaction after data collection.

## Instruments

### • Maternal Confidence

Maternal confidence is the mother's belief in her ability to understand and take care of her infant proficiently (Gross, Rocissano, & Roncoli, 1989). Maternal confidence was measured using the maternal confidence instrument developed by Parker and Zahr (1985). The instrument measured parenting skills and mother's ability to recognize the infant's needs through a 14-item, 5-point scale. Higher scores mean higher confidence. When it was developed, the Cronbach's alpha of this scale scored .89 (Parker & Zahr, 1985). Chae (2001) modified the instrument for the study of Korean subjects, considering cultural differences. Cronbach's alpha of the study on Korean mothers with low birth weight infants was .78 (Chae, 2001). We used the modified version of Chae's instrument. The Cronbach's alpha in this study scored .83.

### • Mother-infant Interaction

Mother-infant interaction is a continuous dynamic process that occurs by mutual stimulation, reinforcement, and reaction of mother and infant. Mother-infant interaction was measured through the Nursing of Children Assessment Feeding Scale (NCAFS) developed by Barnard (1980). This scale is divided into maternal and infant aspects. The maternal portion consists of sensitivity to baby's signal, response to baby's discomforts, behaviors encouraging baby's social-emotional growth and development, and behaviors facilitating infant's cognitive development. The mother-infant interaction portion consists of clearness of the signal and response to the mother's behavior. This instrument consists of 76 observation items, and higher scores mean more positive mother-infant interaction. Bang modified the instrument to fit to the Korean sample, considering potential cultural differences. Cronbach's alpha in Bang's study (1999) on Korean primiparas ranged from .80 to .86. We used Bang's modified version, and Cronbach's alpha in this study ranged from .61 to .84, depending on sub-domains.

## Data Collection/Analysis

Data collection was completed by a nurse practitioner who was certified to measure the NCAFS. Data from the experimental group and control group were collected at 1

month after delivery. The data were analyzed by the Mann-Whitney test-to-test hypotheses. General characteristics of the control group and experimental group were compared using the Mann-Whitney test and Fisher's exact test. We applied the nonparametric statistics to data analysis because of the small number of subjects. Tape-recorded questions raised by mothers during telephone counseling sessions and home visits were

transcribed for content analysis.

## Results

### General characteristics of experimental and control group

<Table 1> Demographic characteristics of experimental and control groups

Characteristics	Groups	Experiment (n = 16) N (%) or M ± SD	Control (n = 15) N (%) or M ± SD	$\chi^2$ or U
Age (yr)		29.69 ± 2.27	29.13 ± 3.20	89.00
Educational level	High school	3 (18.75)	1 (6.67)	1.84
	College and over	13 (81.25)	14 (93.33)	
Employment	Employed	9 (56.25)	9 (60.00)	.05
	Unemployed	7 (43.75)	6 (40.00)	
Duration of marriage (yr)		2.29 ± 1.03	2.20 ± 1.52	105.00
Family income per month (1,000 won)	1,000-2,000	2 (12.50)	4 (26.67)	1.90
	2,000-3,000	9 (56.25)	5 (33.33)	
	3,000 over	5 (31.25)	6 (40.00)	
House status	Own	8 (50.00)	7 (46.67)	.03
	Not own	8 (50.00)	8 (53.33)	
Planned Pregnancy	Yes	12 (75.00)	11 (73.33)	.01
	No	4 (25.00)	4 (26.67)	
Health status (1-3 points)		2.81 ± .40	2.47 ± .74	91.50
Marriage satisfaction (1-3 points)		2.94 ± .25	2.93 ± .26	119.50
Type of delivery	Normal	13 (81.25)	13 (86.67)	.06
	Caesarian section	3 (18.75)	2 (13.33)	
Type of feeding	Breast feeding	5 (31.25)	4 (26.67)	1.28
	Formula feeding	3 (18.75)	1 (6.66)	
	Mixed feeding	8 (50.00)	10 (66.67)	

<Table 2> Comparison of maternal parenting confidences and mother-Infant Interactions between experimental and control groups

Variables	Experimental (n = 16) (M ± SD)	Control (n = 15) (M ± SD)	U	P
Maternal confidence	52.56 ± 5.06	47.47 ± 7.16	67.50*	.037
Mother-Infant interaction:				
Total	55.31 ± 4.35	35.40 ± 9.27	6.00**	<.001
Mother	40.88 ± 3.16	25.20 ± 6.98	7.00**	<.001
M1	14.69 ± 1.14	8.27 ± 2.22	.00**	<.001
M2	9.88 ± .72	7.00 ± 2.45	20.50**	<.001
M3	11.31 ± 1.35	6.60 ± 2.10	9.50**	<.001
M4	5.00 ± 1.21	3.33 ± 1.54	50.00	.004
Infant	14.44 ± 1.79	10.20 ± 3.65	30.50**	.001
I1	9.75 ± 1.00	7.13 ± 2.53	42.50**	.002
I2	4.69 ± 1.14	3.07 ± 1.49	40.50**	.001

\* p < .05; \*\* p < .01

M1: Sensitivity to cues; M2: Response to child's distress; M3: Social-emotional growth fostering; M4: Cognitive growth fostering.  
I1: Clarity of cues; I2: Responsiveness to caregiver.

No significant differences were found between the two groups in age, maternal education, occupation, married years, monthly income of the family, residency, pregnancy planning, health status, marriage satisfaction, delivery method, and feeding method <Table 1>. Therefore, the homogeneity of the control group and experimental group was verified.

### Effects of the maternal self-efficacy promotion program

The Mann-Whitney test was used to test the hypotheses <Table 2>. The experimental group demonstrated significantly higher scores than the control group on maternal confidence ( $U = 67.50, p = .037$ ), mother-infant interaction by mother ( $U = 7.00, p = .001$ ), and mother-infant interaction by infant ( $U = 30.50, p = .001$ ). All scores of the subcategory items on mother-infant interaction in the experimental group were significantly higher than the control group, as shown in Table 2. Thus, the results of the study supported both hypotheses.

### Major questions during counseling sessions

<Table 3> Content of counseling regarding parenting

Category (n)	Specific content
Feeding (12)	Change in breast milk Questions regarding Breast/Mixed/formula feeding Regurgitation Adequate amount of milk Jaundice and breast feeding Breast milk storage Contents of infant formula Change of infant formula
Infant Behavior (6)	Crying at night Frequent awakening during sleep Hiccup
Infant care (5)	Umbilical cord care Room temperature Adequate pillow Bathing
Health problems (4)	Miliaria Upper respiratory infection (URI) Jaundice Atopic dermatitis Diarrhea Vomiting Nasal congestion Hernia
Infant Development (3)	Plays to facilitate infant development

The most frequently asked questions were issues about: infant feeding ( $n = 12$ ); infant behaviors ( $n = 6$ ); coping with problems related to baby care ( $n = 5$ ); common health problems ( $n = 4$ ); and caring skills to facilitate infant development ( $n = 3$ ) <Table 3>.

## Discussion

The results of this study showed that the maternal self-efficacy promotion program was effective; its members showed significantly higher maternal confidence and mother-infant interaction than did the control group. The positive influence of self-efficacy on maternal confidence and child-caring behaviors has been supported by many previous studies (Britton, Gronwaldt, & Britton, 2001; Gross, Rocissano, & Roncoli, 1989; Lee, 1988; Reece, 1992). Reece (1992) reported that the mothers who scored high self-efficacy at the early stage of the role transition period toward motherhood maintained high maternal confidence even one year after delivery. However, studies testing self-efficacy promotion program for maternal role acquisition, particularly mother-infant interaction, have not been widely published in Korea.

Mother-infant interaction is a factor that should be considered seriously for improving parental role adjustment and infant development. Mother-infant interaction within one year after birth is critical for the infant's social, emotional, and cognitive development (Barnard, 1980, 1997). Lack of mother's care may result in the infant's physical, cognitive, emotional, and social development impairment (Brandt, Andrews, & Kvale, 1998; Britton, Gronwaldt, & Britton, 2001). Because the experiences of babies in that period largely depend upon the quality of care-taking activities provided by the mother, paying attention to matters concerning mother-infant interaction is critically significant (Horowitz et al., 2001; Lee, 1988; Pridham, Schroeder, Brown, & Clark, 2001). Most of the intervention content in this study focused on the information about infants' signals that are essential to mother-infant interaction and mothers' responses to their infants' cues. This Intervention is based on self-efficacy promotion program including three components: performance accomplishment, vicarious experience, and verbal persuasion (Bandura, 1986). The intervention focused on increasing the mother's belief that she could successfully perform infant care and on helping the mother learn how to care for her baby and recognize her

infant's states and cues using videotapes, a booklet, and telephone counseling by self efficacy's three components. Development and application of Self-efficacy intervention for first baby mother is significant to maternal and child care nursing. The results of this study support previous research findings that showed that providing parenting education programs to mothers who took care of newborns increased maternal confidence (Jung, 1993; Mentro, Steward, & Garvin, 2002; Seo, 1998). However, there is a discrepancy between the results of our study and the findings of Lee (1990), who reported that there was no significant difference in maternal confidence between mothers who took parenting classes and mothers who did not. The difference may be explained by the fact that Lee's program focused on providing parenting knowledge rather than improving self efficacy by increasing maternal confidence level.

It is interesting to note that questions raised by the primiparas during counseling sessions were mostly about physical care of infants. However, this finding is similar to previous research results that showed that primiparas expressed difficulties about physical care of infants (Mercer, 1985; Walker et al., 1986). Lack of knowledge and experience in parenting that were attributed to the difficulties of maternal role attainment of Korean primiparas (Lee, 1982) suggest the need for more comprehensive education on parenting, not only physical care of infants, but also emotional aspects of care such as mother-infant interaction.

## Conclusion

The results of the study show that the maternal self-efficacy promotion program is an effective intervention for improving maternal confidence and mother-infant interaction among mothers of first born infants in Korea. Strategies suggested by Bandura (1986) are useful for developing such an intervention program.

## Implication

Since the maternal efficacy promotion program could be applied to practice in the community, home, or hospital settings, nurses who take care of primiparas should consider implementing an educational program that incorporates the positive findings found in this study. A follow-up study

involving family members that focuses on the first 12 months of the infant's life would extend our understanding of the factors influencing the growth and development of children and maternal confidence during the early childhood.

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