

# The influence of general self-efficacy of mothers and their interaction with their babies during breastfeeding

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## Abstract

The purpose of this study was to investigate the relationship between general self-efficacy post-partum mothers and their interaction with their babies during nursing. Our goal was to find more effective nursing support to help new mothers to continue to interact with their new born baby.

The subjects were 34 primiparas who were planning to deliver their babies in a particular hospital in Prefecture A. They were asked to fill out a survey form to answer questions regarding general self-efficacy and other psychological traits. The interaction with their babies was videotaped three different times. The results were graded using a time sampling method and later analyzed.

We found a relation between the general self-efficacy of the mother who had a high general self-efficacy at the end of her pregnancy, and how she interacted with her baby right after child birth. These mothers interacted more with their children than did others.

The new mothers were able to learn interaction skills, so that they could continue interacting with their babies. Nurses need to understand that a high general self-efficacy helps greatly for first-time mothers in dealing with their new circumstances of having a child. Knowing that, nurses can provide better personal care for their patients, even before child birth.

## Introduction

Babies less than one month old are already equipped with the abilities of seeing, hearing, smelling and tasting and are continuously interacting with their environment. However, the signals that mother can recognize are limited to crying, spontaneous and refractive smiling, and unintentional movement caused by primitive reflexes, which are that babies can do to transmit their internal feelings, like hunger, pain and displeasure, due to their long sleeping and short waking periods. The presence of the mother for growth and development of babies is the most important among their environmental factors, such that the two are not conceivable independently. Since babies are incapable of movement due to their undifferentiated mother mechanisms, their expression of love is either completely lacking or highly underdeveloped <sup>1)</sup>. Thus, contact between a mother and her baby depends on the mother's behavior.

During this period, the mother may be incapable of recognizing her baby's reactions well. The mother may feel inexperience at her work and feel herself in a repeating cycle of nonproductive trial and error. Also, the mother, one month after her delivery, is in an unstable state caused by a wave of physical, psychological and social pressure within a short period. This presents a danger in that the mother may feel

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weak from unrewarded work, often with failure to care for her baby. Thus, her motivation to continue child care is indispensable until she builds her confidence about her baby's reactions and her own behavior.

To produce such motivation, psychological self efficacy to recognize how well she can handle and/or use accurate knowledge is needed for the mother, and support from her husband and other people.

Self efficacy means a recognition of one's own ability to carry out necessary behavior under certain conditions. It has been reported that speculation on someone's behavior leading to correction and adjustment to an environmental condition, depends on how much self efficacy one has<sup>2)</sup>. Self efficacy consists of two conditions, one which contributes to problem solving ability under certain conditions or for a certain target and the other affects daily reactions under the general conditions. The latter is called general self-efficacy.<sup>3)</sup>

Child caring is long term work until a child becomes independent. During this period, one experiences various problems and unexpected events that mothers must face and solve. Thus, to evaluate if a mother can care for her child continuously during such a long period, we must be measure not only her self efficacy concerning a limited problem but also her general self-efficacy, refracting her personal nature. However, there is no report on general self-efficacy regarding mothers during nursing, and thus, it is not clear how this affects her actual behavior.

This report will discuss the effects of a mother's general self-efficacy related to her behavior towards her baby and develop a continuous care plan to help mothers with less than one month old babies.

#### *Operational terminology of words*

The behavior of a mother to her child is a conscious and unconscious reaction to baby's

senses including vision, hearing and touch observable by a third party.

## **Methods**

### **1. Subjects**

Forty primiparas in a general hospital in A prefecture who understood the purpose of this research and gave permission for the following: answering surveys, three time video-filming immediately and 5 days after delivery, home-visits within one month, and observations from the third trimester of pregnancy to one month after delivery.

From the preceding six were removed as study subjects: 3 subjects with caesarian operation and/or failure to lactate baby within 90 minutes of delivery due to difficulties during and after delivery, 1 subject admitted in NICU, 1 subject who changed completely to artificial milk and 1 subject found to be depressed, totaling 6. Finally there were 34 study subjects.

From ethical considerations, we explained the following orally and on paper before asking for the agreement : the purpose of research, freedom to join and resign from the study, no repulsion after resignation, that the data collected is used only for this research, and that the individual subject's name would be kept anonymous. A confirmation was repeated at every interview and survey.

### **2. Contents of survey**

1) Survey of the background of each subject was taken orally and from her medical record about the following: age, profession, family structure, school career, experience about child contact, miscarriage, treatment for pregnancy, pregnancy, delivery, childbed, pregnant complications, bleeding at delivery, delivery in the presence of husband, new baby's weight, sex, and abnormality at and after birth.

2) Survey by questionnaire

General self-efficacy scale (GSES)

The scale was established to measure the strength of general self-efficacy by Sakano et al.<sup>3)</sup>. This consists of 16 items with numerical points from 0 to 16, the higher the number, the stronger the self efficacy.

3) Video tape observation of mother's behavior toward her baby.

(1) Selection of scenes to be observed.

The conditions were observable at least for one month after delivery, repeating shots where possible and always showing contact of mother and baby, breastfeeding scenes were selected to fulfill this condition.

(2) Remainder at video shots.

Observations were carried out from the beginning till the end of delivery because the photographer was so accepted that observations of the subject were possible with the best accuracy under the given condition. Visits to the hospital room and to the mother's home were planned at breastfeeding time for a one month period to observe mother's natural and routine behavior.

For more accurate recording of breastfeeding scenes, an explanation was given again for more accurate video shots with understanding that it was for research.

(3) Time for analysis and contents of observation.

Between 5 and 20 minutes of breastfeeding was used for videotaping every time. The behavior during the first five minutes of breastfeeding was used for analysis.

Among mother's behavior during breastfeeding on video, the frequency of each action, classified as standard contact

behavior extracted from qualitative studies by Richards et al.<sup>4)</sup> and applied by Carlson's study<sup>5)</sup>, was scored and employed as our data. A time sampling method<sup>6)</sup> was used for scoring the frequency of behavior. The number of times of the appearance of standard contact behavior in category classification was scored and recorded. Observation of behavior was carried out by the researcher, one midwife and one nurse, both of the latter unknown to the subject woman and the researcher. A double blind study in measurement of psychological evaluation was performed to avoid until the completion of observation.

The following is the category classification of contact behavior during breastfeeding of a baby. :

Contact Behavior<sup>5)</sup>

- ① Mother rubs or pats the child to make it burp.
- ② Mother kisses the child or brings it into face-to-face contact.
- ③ Mother rocks infant.
- ④ Mother touches infant's bare skin either before nursing has started or during nursing when infant has the nipple in it's mouth but does not suckle
- ⑤ Mother touches infant's bare skin when it suckles or when it does not have the nipple in it's mouth.
- ⑥ Mother pats clothed parts of infant.
- ⑦ Mother adjusts infant's clothing.
- ⑧ Mother talks to infant.
- ⑨ "En face." Mother aligns her face in the same vertical plane of rotation as the infant's (Robson,1967).
- ⑩ Mother smiles at infant.
- ⑪ Mother holds infant with both arms in an almost horizontal position.
- ⑫ Mother keeps infant against her shoulder or vertically against her chest.
- ⑬ Mother keeps infant in her hands ; infant not

**Table1. Comparison of attributes between GSES high score group and low score group<sup>8)</sup>**

			GSES high score group (N=19)	GSES low score group (N=15)	
			Mean±SD	Mean±SD	
			number (%)	number (%)	test
Obstetric factor	Age		28.0±4.7	25.3±3.8	N.S.
	Delivery method	Normal	17 (89.5%)	13 (86.7%)	N.S.
		Vacuum extraction	2 (10.5%)	2 (13.3%)	
	Time record for delivery (min.)		686.8±518.1	813.6±476.4	N.S.
	Bleeding amount (g)		521.8±309.2	688.5±354.9	N.S.
	Presence of husband	Yes	9 (47.4%)	7 (46.7%)	N.S.
No		10 (52.6%)	8 (53.3%)		
Infant factor	Sex	male	9 (47.4%)	9 (60.0%)	N.S.
		female	10 (52.6%)	6 (40.0%)	
	Weight at birth (g)		3180.4±254.7	2971.5±265.5	*
	Feeding during one month	only breastfeeding	17 (89.5%)	13 (86.7%)	N.S.
mixed feeding		2 (10.5%)	2 (13.3%)		
Social factor	Family	single family	11 (57.9%)	9 (60.0%)	N.S.
		multi family	8 (42.1%)	6 (40.0%)	
	Professional experience, past and current	Nursery, Teacher	3 (15.8%)	1 (6.7%)	N.S.
		Medical care specialist	3 (15.8%)	2 (13.3%)	
		Others	13 (68.4%)	12 (80.0%)	
	Contact experience	No	0	2 (13.3%)	N.S.
		Yes	6 (31.6%)	4 (26.7%)	
played together		5 (26.3%)	4 (26.7%)		
play and care experience		8 (42.1%)	5 (33.3%)		

\* $p < 0.05$ , Student  $t$ -test

touching mother's chest.

⑭ Mother keeps infant lying in her lap.

The fourteen categories were reclassified into four groups based on the mother's behavior during breastfeeding by three investigators of maternity care, including this author.

The behavior directly expressing mother's feeling and mode (categories ②,⑤,⑩) was grouped to the behavior of feelings and mode expression: Behavior required for normal breastfeeding (categories ①,⑦,⑪,⑫,⑬,⑭) was grouped to functional behavior: Mother's fondling behavior (categories ③,⑥,⑧) was grouped to nursing: Mother's behavior responding to baby's condition or state (categories ④,⑨) was grouped to behavior.

Frequencies of appearance of behavior belonging to each of four the groups were included the data.

### 3. Procedure of survey

1) Third trimester of pregnancy (from 36<sup>th</sup> to 40<sup>th</sup>, week).

A questionnaire was distributed to primiparas visiting obstetrics outpatient services and the answer sheet was filled out while waiting for their health assessment; this was collected onsite.

2) Immediately after delivery.

The behavior of mothers' to their newborns was recorded on video (first breastfeeding).

3) 5 days after delivery, before her hospital discharge.

The questionnaire was distributed and collected right after it was filled-out. Mother's behavior towards her baby (breast-feeding). was recorded on video.

4) One month after delivery.

A home visit was carried out between 29 to 42 days after delivery. The answered questionnaire was collected and mothers contact behavior (breastfeeding) was recorded on video. The duration of data collection was from July 2001 to September 2001.

4. Analysis

Taking the average GSES score of adult females,  $9.121 \pm 3.929$  points<sup>7)</sup> as the standard, a group with GSES above 9 points was called high GSES score group and less than 8 points was called low score group. The frequency of appearance of group behavior and classification were compared. Wilcoxon signed rank test, Welch t-test and Student t-test were used as frequency tests of two independent groups. Statistical software SPSS10.0J for Windows was used for analysis and a meaningful level was set at under 5%. For less than 10% sample was consider to show that tendency.

**Results**

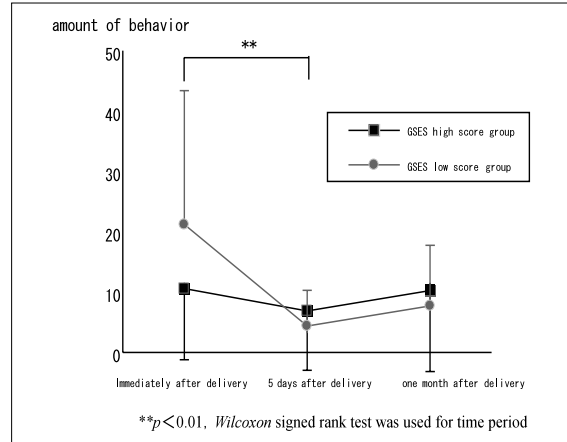
1. The effect of general self-efficacy on behavior examined by comparison between GSES high score group and the low score group.

1) Comparison of attributes between GSES high score group and low score group.

Table 1 shows the actual scores and percentages of both groups with regard to obstetric factors, related with child and social factors.

(1) Obstetric factors

There was no meaningful statistic difference between the two groups in average age, miscarriage, abnormality during pregnancy, treatment for sterility,



**Fig.1 Comparison of average frequency of emotional expression behavior between two groups**

method of delivery, time required for delivery, bleeding in delivery and presence of husband.

(2) Infant factors

A meaningful statistic difference was observed between the GSES high score group ( $3180.4 \pm 254.7$  g) and the low score group ( $2871.5 \pm 265.5$  g) ( $p < 0.05$ ). A difference was not found based on sex, trouble during newborn stage, and nutritional factors.

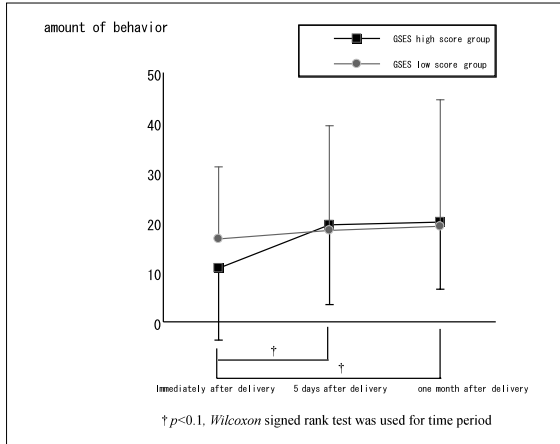
(3) Social factors

No meaningful statistic difference was seen from family structure, school career, work in past and at present and contact experience with newborn.

2) Transition of frequency of behavior appearance between high GSES score group and low score group and comparison.

(1) Transition of emotional expression (Fig.1).

A meaningful alteration in frequency of behavior appearance was not found between high score and low score group of GSES, as  $10.6 \pm 11.8$  immediately after delivery,  $6.9 \pm 9.9$  5 days after delivery and  $10.3 \pm 13.4$  one month after delivery.



**Fig.2 Comparison of average frequency of pleasing behavior between two groups**

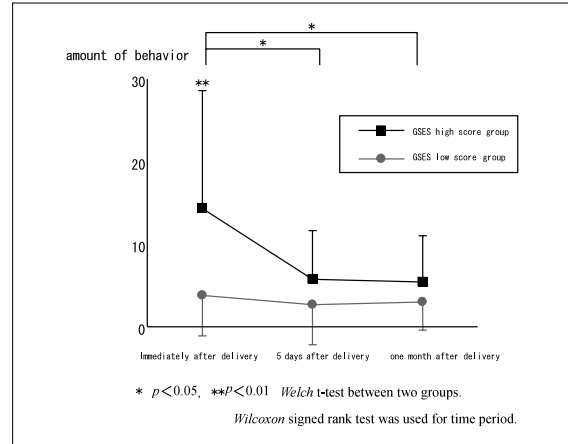
Frequency of appearance of GSES low score group showed a statistically meaningful difference in the cases of right after and 5 days after delivery, as 21.2 ± 22.2 immediately after delivery, The scores were 4.4 ± 5.9 for 5 days after delivery and 7.7 ± 10.0 for one month after delivery ( $p < 0.01$ ). It shows a tendency to decrease the frequency ( $p < 0.1$ ).

(2) Transition of functional behavior.

Frequencies of functional behavior in high GSES score group were 0.0 immediately, after birth, 2.0 at 5 days, and 1.0 one month after delivery. Frequencies of functional behavior in low GSES score group were 0.0 immediately, after birth 1.5 at 5 days, and 1.3 at one month after delivery. The frequency tests were not performed for both cases due to small numbers.

(3) Transition of fondling-dandling behavior (Fig.2).

Frequencies of pleasing behavior in high GSES score group were 10.7 ± 14.4 immediately after, 19.4 ± 16.0 at 5 days, 20.0 ± 13.5 at one month after delivery, There was no meaningful statistic difference following these stages. A



**Fig.3 Comparison of average frequency of reactive behavior between two groups**

tendency to increase in frequency was found at 5 days ( $p < 0.1$ ) and at one month after ( $p < 0.1$ ), relative to immediately after delivery.

Frequencies of pleasing behavior in low GSES score group were 16.6 ± 14.5 immediately after, 18.3 ± 21.0 at five days, and 19.1 ± 25.4 at one month after delivery. No meaningful difference was found.

(4) Transition of reactive behavior (Fig.3).

Frequencies of reactive behavior in high GSES score group were 14.3 ± 14.3 immediately after, 5.7 ± 5.9 at 5 days, 5.4 ± 5.6 at one month after delivery. Meaning statistic differences were found at 5 days ( $p < 0.05$ ) and one month ( $p < 0.05$ ) relative to immediately after delivery.

Frequencies of reactive behavior in low GSES score group were 3.8 ± 4.9 immediately after, 2.7 ± 4.9 at 5 days, 3.0 ± 3.4 at one month after delivery. No meaningful statistic difference was found.

(5) Comparison between two groups on frequency of behavior appearance in every observation ( Figs. 1 to 3).

No statistically meaningful difference

was found in emotional expression. No comparison was performed due to insufficient observation of functional behavior. No statistically meaningful difference of pleasing behavior was found. A statistically meaningful difference of reactive behavior between high GSES score group and low score group at immediately after delivery ( $p < 0.01$ ).

### Discussion

1. The effect of general self-efficacy to approach behavior through comparison between GSES high and low score group.

The frequency of appearance of emotional expression and behavior showed no different between two groups, despite speculation about relatively stable appearance of emotional expression in mothers with high GSES score. The emotional expression of low score group appeared greatest immediately after delivery. A meaningful difference in frequency of behavior appearance found between immediately and 5 days after and one month after delivery in the low score group has been considered as a tendency that transition of the sage influences to her behavior and shows less expression of emotional behavior to her baby in low score group.

The frequency of appearance of emotional expression shows absence of difference between two groups and thus, it is conceivable that there is no relation between general self-efficacy and the behavior of expression.

Frequency of functional behavior is rather low in both groups. Mothers concentrated on breastfeeding baby through the observation period of 5 minutes. and, thus, it was harder for mother to express her functional behavior. However this behavior is more likely to appear under a longer observation period.

Frequency of appearance of pleasing

behavior showed no difference during the time. However, there was a tendency to increase the frequency proportional to an increase of time in high score group. No change of frequency and constancy are found in the low score group.

There is no difference of frequency in pleasing behavior between the high and the low score group and there is an absence of relation between mother's general self-efficacy and pleasing behavior. Her pleasing behavior must gradually be learned after delivery as time progresses.

There is difference of the frequency of reactive behavior just after delivery between the high and the low group and this suggests that general self-efficacy influences her reactive behavior at an early stage without knowledge. and experience.

2. Nursing support to mother who is approaching to her baby.

It has been suggested that mother's influential behavior on her baby, especially her expression of reactive behavior, is a reflection of her psychological state which changes as her situation varies and of her personality. First experience of baby's growth and development due to in nurturing a child is often a new experience without precedent. Even though such a first experience is without preceding knowledge, a mother must accomplish each special process needed for raising a baby, and must increase her level of general self-efficacy developed in her history from youth to pregnancy. These are indispensable for continuous maintenance of mother's influence on her baby.

This study focuses on mother's general self-efficacy which is part of her personality to explain the basis for nursing and caring for babies in clinical practice. This should be a basic study for such practice and may

contribute to understanding and screening of mother's personality within a short period through breastfeeding behavior. We understand that the limit of this study is based on the complexity of emotional behavior, so that the number of subjects of primipara must increase.

### Conclusion

More reactive behavior immediately after delivery was expressed among primiparas with higher general self-efficacy. The possibility of influence of her general self-efficacy, part of the personality, on whether she can properly react to various unprecedented events during a long period of raising child, has been suggested.

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