

# Process of Change in Mothers' Abilities to Perceive Infants' Emotions

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## 要 旨

本論の企図するところは、言語によるコミュニケーション手段が未熟な乳児と母親の関係性の発達に影響を及ぼすことが考えられる、母親の情動認知と文脈利用の発達の變化を、新たに開発したビデオ刺激を活用して、発達早期からの短期間、反復的なマイクログ視点による研究デザインで詳細な検証を行うことである。

その結果、母親は、乳児の表情や行動といった子どもに焦点化された情報だけでなく、遊んでいる対象や、母親の内的表象（育児態度や育児信念）も利用して情動を認知している可能性が示唆された。また、発達障害の子どもを持つ母親は、健常児を持つ母親と比較して、母親の内的表象（育児態度や育児信念）の利用が少ないことが示唆された。

## Abstract

For investigating changes in mothers' perception towards infant emotions and use of context, this study viewed the infant stage microscopically to cover their immature linguistic ability. The findings were that mothers perceived infant emotions through children's facial, behavioral and vocal expressions and context (their playthings) and also mother's internal attitude and beliefs about child rearing, and that mothers having developmentally-disabled infants tended to polarize about the use of child-focus information into a frequent-user group and an infrequent-user group.

Key words: Mother-infant relationship, ability to read infant's emotions, video stimulation, categorization of emotions

## I. Background and Aims

Changes in subjective consciousness and self-image related to being a mother, as well as changes in attitude and significance regarding child rearing have been examined in studies of the psychological development of mothers (Kashiwagi & Wakamatsu, 1994; Tokuda, 2004). Although such studies focused on those changes from the viewpoint of lifelong development, changes in mother-child interactions have not been fully investigated. Emde & Sorce (1988) suggested that mothers' availability to interpret emotions of their newborns who can not express specific emotions by definitive signals in a daily context might contribute to the mother-child empathic process. It is expected that the ability of a mother to recognize and interpret infant emotions in the context of mother-child interaction exerts great effects on the subsequent response

behavior to the child. However, there have been few studies on mother perception of infant emotions and development of such response behavior in the context of daily life.

To elucidate how mothers perceive the emotional expression of their infant, which can be uncertain in the early developmental stage, and how they behave in response are important factors for forming a stable relationship between mother and child. It has also been reported that the response behavior of mothers affects infant development (Hsu & Fogel). When considering the effects on infant development, it is necessary to verify the developmental process of a mother's perception of infant emotions and response behavior. Obara (2005a, 2005b, 2006) reported the characteristics of maternal perception of infant emotions and response behavior as follows: 1) their emotional perception broadens with experience in child rearing to even include negative emotions, and 2) the

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capacity for emotional perception and sensitivity are correlated with child rearing behavior.

On the basis of those findings, it is expected that emotional perception and response behavior of a mother might change according to the daily context of mother-child interactions. However, in those investigations, maternal perception of infant emotion was examined by using photos of infants. We considered it necessary to conduct an investigation more consistent with actual daily interactions between mothers and their children. Moreover, it has yet to be clarified how a mother's perception and response behavior change and correlate when their child is the early childhood stage, when development changes are marked. Furthermore, differences in patterns of development of a mothers' perception of their infant emotions and response that are dependent on the nurturing environment and degree of development, such as abuse and developmental diseases, have been scarcely examined. For these reasons we employed a systematic investigation plan, including development of a valid survey method.

The purpose of this study was to investigate changes in the perception of mothers toward infant emotions and use of context, as such changes are considered important for the development of relationship between mother and child. In the infant stage, communication through language is in an immature form, thus the present study was designed to investigate the early developmental stage from a repetitive micro-level viewpoint. It was previously suggested that infants express their emotions without meaningful correlation with a particular phenomenon (Oster et al., 1992). It has also been proposed that the fluency of the framework of mother-infant interaction might be maintained based on the ability of the mother (Kay, 1993). Therefore, it is considered that a mother's perception of their infant's emotions might be significant as a social function in the development of the child. Moreover, it was suggested that a mother's perception might be correlated to her negative feelings toward child care, which is likely to direct her attitude toward child rearing (Obara, 2005).

For this type of maternal perception, it has been suggested that mothers recognize and interpret infant

emotion by not only facial expressions, but also through the use of context (Tronic & Brazelton, 1980). However, empirical studies of the context surrounding mother-child interactions and what part mothers might pay attention to in order to interpret infant emotions are not sufficient, while the methods of determination utilized have also been inadequate.

In this study, we presented stimuli in video clips to determine mothers' perceptions of infant emotions and use of context, and analyzed our findings in regard to maternal perception and use of context.

In doing so, we will make a comparison between the normal and developmental disease groups, in order to determine the differences as well as clarify the diversity of perceptions of the mothers in regard to infant emotion and use of context.

## II. Method

### Development of stimuli using video clips

There were 127 subjects, who were all mothers rearing infants (3-month-old infants: 29 mothers, 6-month-old: 25, 9-month-old: 34, 12-month-old: 39). To prepare the video clips, groups of 4-5 infants categorized by age (3, 6, 9, and 12 months) were recorded on videotape. Scenes showing their expressions of emotion, namely, positive, negative, and neutral, were extracted to prepare five 15-second video clips for each age group, for a total of 20 clips. On the basis of the mothers' ratings of emotional state, pleasant or unpleasant, 5 video clips for each age group were finally selected as stimuli for giving consideration to a broad range of emotions from pleasant to unpleasant.

**Participants:** 5 mothers of healthy infants and 3 mothers of infants with developmental conditions who were rearing 3-month-old infants each time of 3 months, 6 months, 9 months, 12 months by the infant. Moreover, we asked 10 mothers of infants aged 2-3 years old and diagnosed with developmental conditions to make a similar evaluation.

**Stimuli :** each of the five 15-second video clips of infants divided into age groups (3, 6, 9, and 12months;

total of 20 clips)

**Procedure :** We presented each of the five 15-second video clips of infants divided into age groups (3, 6, 9, and 12 months; total of 20 clips) to 5 mothers who were rearing 3-month-old infants each time of 3, 6, 9, and 12 months by the infant and asked them to rate the following items (below).

**Verification of developmental changes in mother's perception of emotion and use of context**

We presented each of the five 15-second video clips

of infants divided into age groups (3, 6, 9, and 12 months; total of 20 clips) to 5 mothers who were rearing 3-month-old infants and asked them to rate the following items: Moreover, we asked 3 mothers of infants aged 2–3 years old and diagnosed with developmental disease to make one similar evaluation.

How did you perceive the infant emotions seen in the video clips?

What context was used for perceiving the emotions?

In addition, we asked each mother to make a written assessment of their negative emotions to child care.

Picture 1 3-month-old infants video clip



Picture 2 6-month-old infants video clip



Picture 3 9-month-old infants video clip



Picture 4 12-month-old infants video clip



Table 1 produced categories:  
context that mother used for perceiving the emotions  
(obara, 2008)

The index that is observed objectively	Psychological state
Infant's action, voice, facial expression, eyes	Infant' Psychological state
Mother's action	Previous experience with child care
mother and infant interaction	Belief about child care
External context	

### III. Results

Figure 1. mother's use of the index that is observed objectively

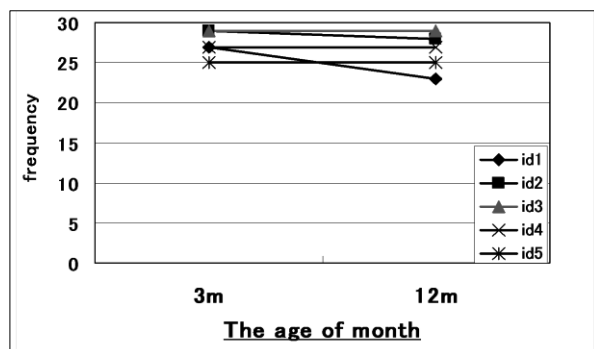
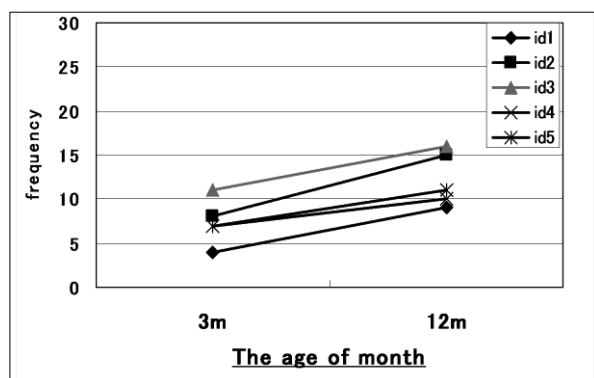


Figure 2. mother's use of psychological state.



### IV. Discussion

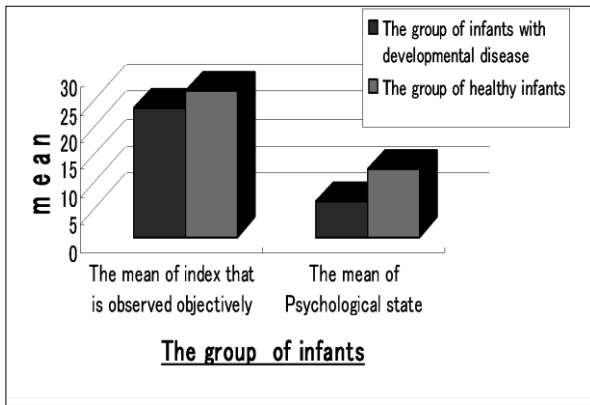
Our findings suggested that a mother changes with addition of experience in child rearing to more frequently perceive infant emotions on the basis of their internal attitude and beliefs regarding child rearing as compared to information gained by focusing on actions of the child such as facial, behavioral, and vocal expressions, or objective observable information such as an object being handled by the child. In a study that utilized infant photos as stimuli, Obara (2005a, 2005b, 2006) suggested the characteristics of maternal perception of infant emotions and response behavior, as follows: 1) maternal perception of infant emotions developed and broadened with experience in child rearing even to include negative perception, and 2) the breadth of maternal perception and sensitivity in rearing behavior were correlated.

The present results obtained with use of video clips of daily interactions likely explain the results of Obara's studies. We concluded that perception of a wider range of infant emotions was likely on the basis of not only information obtained by focusing on the child such as facial, behavioral, and vocal expressions, and objective observable information such as an object being handled by the child, but also learned from experience, such as the mother's internal attitude and beliefs regarding child rearing.

Moreover, our findings suggested that the mothers of infants with developmental diseases use learned information such as the mother's internal attitude and beliefs regarding child rearing less frequently than the mothers of healthy infants. It is known that infants with developmental diseases have poor emotional expressions that are difficult to interpret based on the situation and exhibit intense emotional expressions such as panic.

Together, our findings show that use of learned information regarding child rearing make it difficult for mothers, leading to a tendency of more frequent use of objective observable information such as infant behavior and facial expressions. We concluded that the lack of linkage between experience in child rearing and perception of infant emotions may be an important causal factor related to child-rearing anxiety for mothers.

Figure 3. Different of mother's use of context



## V. Future research

In the future, we hope perform a more detailed study with a greater number of subjects to further investigate developmental changes in mothers' perceptions of infant emotions and use of context, and the relationships among them.

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