The development of a maternal caregiving system:
Based on changes in the attachment—caregiving balance scale up to 6‒7 months postpartum

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Abstract

Objective
To clarify the development process of mothers as caregivers up to 6‒7 months postpartum and acquire basic data for the purpose of devising support measures appropriate to development states by looking at chronological changes in the Attachment-Caregiving Balance Scale, which was developed as a scale to measure the development of the maternal caregiving system.

Methods
Mothers who received a 1-month postpartum health check were asked to participate in follow-up research. Valid responses from 116 participants gained from research conducted up to 6‒7 months after birth were analyzed. All surveys were collected through mail. The research included the Attachment-Caregiving Balance Scale, childbirth history, and the existence of a parenting adviser. Shifts in the 6 factors that comprise the Attachment-Caregiving Balance Scale were compared using one-way analysis of variance, and covariance structure analysis was utilized to confirm impacts on the 6 factors, such as the child’s age and whether a mother had previously given birth.

Results
Out of the 6 factors, significant differences were seen in primipara and multipara at 1 month postpartum for “adaptation: attachment,” “sensitivity: attachment,” and “sensitivity: caregiving,” while a difference was seen in “sensitivity: attachment” at 3‒4 months postpartum and 6‒7 months postpartum. Significant differences were seen during the 3 postpartum phases in “adaptation: attachment” and “sensitivity: caregiving” for primiparas, and “sensitivity: caregiving” for multiparas. Although childbirth history and the child’s age significantly impacted some of the 6 factors, an estimated value of over 0.2 was seen only in childbirth history and “sensitivity: attachment,” and the child’s age and “sensitivity: caregiving.” The coefficient of determination for both was around 10%.

Conclusion
From 1 month to 6‒7 months postpartum “adaptation: attachment” declined and “sensitivity: caregiving” rose. No significant chronological difference was seen in “sensitivity: attachment,” but multiparas showed a tendency toward increase. Though a child’s age and childbirth history were factors impacting the caregiving system, the impact was not substantial. Based on the above, it can be inferred that a caregiver’s development is not simply determined by a child’s age or whether a mother has previously given birth. Rather, it is thought to be tied to effective support measures that utilize the developmental state of each of the 6 factors and elements that impact them as one type of assessment material.

Keywords: Attachment-Caregiving Balance Scale, caregiving system development, mothers

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I. Introduction

There is a great deal of research regarding the mother-child relationship, and parenting anxiety and stress. However, each year sees an increase in child abuse, which can be called an exemplification of an improper mother-child relationship. There is no indication that parenting anxiety and stress are on the decline, which suggests the need to examine support measures currently being carried out.

Though there has been much research on what changes as mothers develop into caregivers, that process remains unclear. However, that process must first be understood to offer support commensurate with the development of individual maternal caregivers.

The “attachment-caregiving program” is given precedence in the mother-child relationship (Bowlby, 1969/2003). In the attachment-caregiving program, when a child feels a negative emotion (anxiety), the caregiver produces a caregiving behavior (caregiving system: protecting the child) in reaction to the attachment behavior (attachment system: proximity to the object of attachment) triggered to eliminate that emotion. The child’s negative emotion (anxiety) is cancelled out and positive emotion (security) is provided. The result is the deactivation of the child’s attachment behavior (Prior & Glaser, 2006/2008). Thus, through a repeated process of appropriate caregiving in regard to the child’s attachment, the child becomes attached to the caregiver and an internal mental model for attachment is formed. The smooth functioning of this program results in a positive mother-child relationship and the child’s acquisition of a fundamental trust, culminating in a positive impact on growth and development (Erikson & Erikson, 1982/2001). In other words, the mother’s caregiving system for the child must appropriately function for the program to be smoothly carried out.

By becoming a mother, the mother transforms into a caregiver. This is because the mother’s own attachment system is reorganized to protect her child and combines with the caregiving system. This merging with the caregiving system can be understood as the development of the caregiver (Kazui, 2002). That is, clarifying the development process of the caregiving system will lead to support that corresponds to an individual mother’s development state.

1. Perception of “attachment” and “caregiving” in the integration process for the caregiving system

The perception of “attachment” and “caregiving” in the integration process for the caregiving system is based on Attachment Theory (Bowlby, 1969/2003). Originally, “attachment” was defined as prompted by a negative motivator (anxiety, threat, etc.; Bowlby, 1969/2003, 1980/2003), and “caregiving” was said to be evoked by the desire (protection, provision of security) to turn a negative circumstance into a positive one (Prior & Glaser, 2006/2008). The current definition has moved away from the original so that “attachment” refers to overall affection, and “caregiving” indicates general parenting. The word attachment is often used for both mother and child. However, from the perspective of behavioral ecology, some believe that attachment and affection should be clearly distinguished (MacDonald, 1992). Moreover, since “attachment” does not normally arise from a strong entity toward a weak one according to the original meaning, some are of the opinion that attachment from mother to child does not exist (Prior & Glaser, 2006/2008). However, during the process of caregiver development—that is, when the mother’s (caregiver’s) “attachment system” and “caregiving system” merge—it can be argued that attachment from mother to child exists because a child’s reaction greatly impacts the elimination of the mother’s attachment (anxiety).

2. Definition of “attachment” and “caregiving” from mother to child in this study

Attachment from mother to child is defined as “a mother’s strong concern with self and an anxiety toward motherhood while maternal self-identification is forming. She requires support and attempts to reduce maternal anxiety through her child (the child’s reactions).” Caregiving from mother to child is defined as, “a mother’s indication of concern toward her child, protection of her child, and provision of security and comfort to reduce her child’s anxiety and feelings of threat (including potential ones). She satisfies the child’s wants and
accepts herself as a mother.” In other words, it was projected that as a mother develops into a caregiver, attachment decreases and caregiving increases.

II. Study Aim

To clarify the development process mothers undergo to become caregivers up to 6–7 months postpartum, and acquire basic data for the purpose of devising assistance measures appropriate to individual development states.

III. Study Method

1. Period of study and participants

Participants were mothers who received a 1-month postpartum health exam between June 2011 and November 2011.

2. Study method

A written request for participation in this ongoing study (the survey is to be conducted 6 times—at the 1-month checkup, 3–4 months postpartum, 6–7 months postpartum, 9–12 months postpartum, 18 months postpartum, and 3 years postpartum) and a questionnaire were distributed to mothers at the 1-month postpartum health checkup. Mothers who gave their consent returned the questionnaire within 1 week by mail. From 3–4 months postpartum, surveys were sent by mail and returned within 1 week.

Reasons for selecting questionnaire periods

Since a parent’s development is deeply linked to a child’s development (Pak, 2006), it is thought that a caregiver achieves some kind of development during the same period that a child develops attachment. Thus, this study selected questionnaire periods that correspond to the 4 stages of a child’s attachment development (Bowlby, 1969/2003).

A child’s attachment development is in its 1st phase at 1 month, at its 2nd phase at 3–4 months, and at its 3rd phase at 6–7 months. At 9–12 months, a woman’s identity as a mother is established (Winnicott, 1958/2007). At 18 months postpartum, parental anxiety is heightened and a mother is psychologically separated from her child (Takeda, 2009). At 3 years old, a child is in the 4th phase of attachment development.

3. Study contents

The questionnaire content consisted of the Attachment-Caregiving Balance Scale and attributes (number of children, existence of a parenting adviser).

Summary of the Attachment-Caregiving Balance Scale:

The Attachment-Caregiving Balance Scale measures the development state of a mother’s caregiving system (Takeda, Kobayashi, Kato, 2012a). During the process when a mother’s attachment system shifts to a caregiving system, the balance between a mother’s attachment and caregiving is thought to change. That change is controlled by whether the mother is adapting. A mother’s “sensitivity” influences the process (Ainsworth, Blehar, Waters et al., 1978), and “intimacy” is necessary to the facilitation of that process (Belsky, 1999). “Adaptation” refers to a woman’s acceptance of herself as mother, formation of self-identification as a mother, creation of an appropriate relationship with the child, and a mother’s adjustment to the idea of being a parent while altering the balance between the notion of wanting to protect herself and feel secure (attachment), and wanting to protect and provide security to her child (caregiving). “Sensitivity” refers to displaying concern over the child, determining what that signifies, responding, and carrying out the parental role while altering the balance between her own wants and concerns (attachment) and concern over the child (caregiving). “Intimacy” is the bond between mother and child, and indicates affection and the desire to provide care. The relationship with the child is built while maintaining a balance between the mother’s desire to care for herself (attachment) and care for her child (caregiving).

Thus, these 3 factors of adaptation, sensitivity, and intimacy are factors that measure the development of the caregiving system. Within each one, attachment factors and caregiving factors are defined to form a scale comprised of 6 factors (Takeda, Kobayashi, Kato, 2012a; Table 1).

The reliability and appropriateness of the scale items were examined based on item analysis, GP analy-
sis, IT correlation, exploratory factor analysis, test-retest method, and Cronbach’s alpha coefficients. The scale has a total of 30 items, 5 items for each factor (7 points). A model fitting was acquired from other surveys using the scale with a Cronbach’s alpha coefficient of 0.882, a confirmatory factor analysis of GFI=.842, AGFI=.812, and RMSEA=.074 (.044 in multi-parent populations). The reliability and appropriateness of the scale were confirmed through significant differences using the known groups method (Takeda, Kobayashi, Kato, 2012b).

### 4. Ethical considerations

This study was implemented after receiving approval from the ethics committee at the university to which the author belongs (Approval No.: 23-01). A written statement was provided explaining the aim of the study, protection of privacy, that participation was voluntary, and that there would be no disadvantage should a participant quit the study. This study was carried out with the written consent of the participants.

### 5. Method of analysis

1) Averages in shifts in the 6 factors of the Attachment-Caregiving Balance Scale were compared using one-way analysis of variance for the 3 stages and the t test from independent samples of primipara and multipara.

2) Covariance structure analysis was conducted on 6 factors that were observed endogenous variables, and the exogenous variables of “the child’s age (1 month, 3–4 months, 6–7 months)” and “whether the mother was a primipara or a multipara” to confirm how much impact the child’s age and childbirth history had on the 6 factors.

Analytic processing was conducted using SPSS Ver.18.0 and Amos Ver.19.0. The significance level for both was below 5%.

### IV. Results

500 questionnaires were distributed and replies were received from 143 women (recovery rate: 28.6%), but consent for the ongoing study was received from 125 women. Of the 125 participants, valid responses regarding the 3 phases subject to analysis were received from 116 participants (valid response rate: 92.8%). The participants consisted of 54 primipara (46.6%) and 62...
multipara (53.4%), and 81 women (69.8%) age 34 or younger and 35 women (30.2%) age 35 or older. There were 65 homemakers (56.0%), and 115 women (99.1%) indicated they had someone to provide parenting advice.

1. Comparing the 6 factors of the Attachment-Caregiving Balance Scale for primipara and multipara (Table 2)

A significant difference was seen in the averages for primipara and multipara at 1 month postpartum in “adaptation: attachment” (t value 2.104, p=.038), “sensitivity: attachment” (t value -4.349, p<.001), and “sensitivity: caregiving” (t value -3.860, p<.001). A significant difference was seen at 3–4 months postpartum in “sensitivity: attachment” (t value -3.225, p=.002), and at 6–7 months postpartum in “sensitivity: attachment” (t value -3.746, p<.001).

2. Shifts in the 6 factors of the Attachment-Caregiving Balance Scale (Table 2)

A significant difference was seen in averages for the 3 phases in “adaptation: attachment” (F value 3.847, p=.023) and “sensitivity: caregiving” (F value 16.862, p<.001) for primipara, and in “sensitivity: caregiving” (F value 6.415, p=.002) for multipara. Overall, a significant difference was seen in “adaptation: attachment” (F value 5.138, p=.006) and “sensitivity: caregiving” (F value 22.014, p<.001).

3. Impact of a child’s age and childbirth history on the 6 factors of the Attachment-Caregiving Balance Scale (Figure 1)

A significant estimated value was seen in the standardizing coefficient for “adaptation: attachment,” a child’s age, and childbirth history; “adaptation: caregiving” and childbirth history; “sensitivity: attachment” and childbirth history; “sensitivity: caregiving,” a child’s age, and childbirth history. However, an estimated value of over 0.2 was obtained for “sensitivity: attachment” and childbirth history (β=0.33, p<.001), and “sensitivity: attachment” and childbirth history (β=0.33, p<.001).

Table 2  Average Primipara/Multipara Scores by Phase for the 6 factors of the Attachment-Caregiving Balance Scale

<table>
<thead>
<tr>
<th>Child’s age</th>
<th>Primipara/Multipara</th>
<th>Adaptation</th>
<th>Sensitivity</th>
<th>Intimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primipara</td>
<td>Multipara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 month</td>
<td>14.50</td>
<td>26.94</td>
<td>14.43</td>
<td>24.33</td>
</tr>
<tr>
<td></td>
<td>12.13</td>
<td>27.98</td>
<td>18.76</td>
<td>27.08</td>
</tr>
<tr>
<td>3–4 months</td>
<td>12.20</td>
<td>27.80</td>
<td>14.47</td>
<td>27.58</td>
</tr>
<tr>
<td></td>
<td>10.58</td>
<td>29.25</td>
<td>17.60</td>
<td>28.75</td>
</tr>
<tr>
<td>6–7 months</td>
<td>11.59</td>
<td>27.94</td>
<td>14.19</td>
<td>28.91</td>
</tr>
<tr>
<td></td>
<td>10.90</td>
<td>29.12</td>
<td>17.99</td>
<td>28.99</td>
</tr>
<tr>
<td>F value</td>
<td>3.85*</td>
<td>0.60</td>
<td>0.06</td>
<td>16.86**</td>
</tr>
<tr>
<td>Total</td>
<td>1.64</td>
<td>1.35</td>
<td>0.61</td>
<td>6.42**</td>
</tr>
</tbody>
</table>

The primipara/multipara for each phase is the t value for independent samples. The F value is a one-way analysis of variance of the 3 phases for primipara/multipara.

( *p<.05, **p<.01 )
ity: caregiving” and a child’s age (β=0.32, p<.001). The R² value was 0.11 for “sensitivity: attachment” and 0.13 for “sensitivity: caregiving.”

V. Discussion

1. Development of the Caregiving System: Shifts in the 6 factors of the Attachment-Caregiving Balance Scale

Similar to research results to date (Takeda, Kobayashi, Kato, 2012a, 2012b), a comparison of attachment factors and caregiving factors shows that attachment factors fell and caregiving factors rose. Though the caregiving system develops as attachment factors decline and caregiving factors rise, they are believed to repeatedly rise and fall as development occurs, similar to the acquisition process for the maternal role (Shindo & Wada, 1997).

Looking separately at the outcomes for primipara and multipara in this study shows a significant difference at 1 month postpartum in “adaptation: attachment,” but no difference was seen thereafter. Chronological shifts in “adaptation: attachment” for primipara show a significant decline as the months progressed. This can be explained by the fact that “adaptation: attachment” was significantly lower for women who had previously given birth to a child, since a high “adaptation: attachment” indicates a woman lacks confidence as a mother and feels anxious about her relationship with her child. As women acquired parenting experience, even primipara gained confidence, and in the later process the difference between multipara disappeared. Consequently, it can be said that the bond between mother and child is formed through interaction with the child and parenting from birth through early childhood, and thus is impacted by childbirth and the parenting experience (Klaus & Kennel, 1995/2001).

A difference due to parenting experience was also seen in “sensitivity: caregiving,” which refers to a mother’s sensing of the child’s state and the satisfaction of the child’s needs. Because a significant increase was seen as time passed not only in primipara but multipara as well, this indicates that even for multipara the relationship with the newborn is a first, and it takes time to come to understand that child’s personality and respond to it.

While there was no chronological change in “sensitivity: attachment,” a difference was seen in primipara and multipara. “Sensitivity: attachment” indicates a strong concern with self, but while a primipara has many new experiences and is in a situation where she cannot pay heed to herself, the multipara shows concern toward her child and because she has an older child, she simultaneously tries to control the situation to facilitate the care of more than one child. Based on the fact that “sensitivity: caregiving” was significantly higher for multipara at 1 month, and research results showing that multipara view their child as so adorable that they enjoy parenting (Omura & Mitsuoka, 2006), it can be thought that the absence of burden on the mother is linked to concern for the child. The sub-items for “sensitivity: attachment” include “I don’t want to accept my child for reasons of my own convenience,” “I get angry and make my child listen to me,” “I put my own convenience ahead of my child,” etc., but it is necessary to ask about the circumstances that exist when a mother feels that way and her emotions at such a time in order to determine whether the mother is truly putting herself first or if she has no choice because of reasons relating to an older child.

“Adaptation: caregiving” is the acceptance of the maternal role, and “intimacy: caregiving” indicates affection for the child. No significant difference was seen in these either between primipara and multipara, or in the different phases. This can be attributed to the fact that the content of these 2 factors includes “attachment/acceptance of the child,” which is contained in the “preparatory state of parenthood” that was clarified in research (Kamata, Naragino, Suzuki et al., 2002). In other words, they have been cultivated since pregnancy.

“Intimacy: attachment” is a state that requires support, and perhaps no difference was seen between primipara and multipara or the different phases because nearly all the participants had a parenting adviser, so the group had persons available to provide support.

Assuming that in “adaptation: attachment” and “sensitivity: caregiving” where a significant difference was seen, the women understood their child and had
confidence in themselves as mothers due to interaction with their child, these factors can be perceived as factors that change postpartum through actual parenting.

The above suggests that during the development of the caregiving system up to 6–7 months postpartum, “adaptation: attachment” declined due to the mother’s confidence in her relationship with her child, and “sensitivity: caregiving” increased due to the mother’s deeper understanding of her child.

Other factors showed no significant difference in chronological changes. This may be because the shift to the caregiver system began with puberty, and potentially undergoes maximum change during pregnancy and the few months after birth (Kazui, 2005). Thus, it can be said that the study participants had already developed to a certain degree during puberty and pregnancy. During the 6–7 month period, a mother’s anxiety over separation from her child disappears (Winnicott, 1958) and the 3rd phase of attachment to child (proximity to a specific object) begins, so the period can be thought of as a time when changes also arise in the mother-child relationship. While the mother exhibited the preparatory state of a caregiver that had been building throughout her life up to that point, she developed the new matters of “adaptation:attachment” and “sensitivity: caregiving.” Though no significant difference was seen, “adaptation: caregiving” tended to rise while “intimacy: attachment” tended to fall, suggesting individual differences in preparatory states and that development progresses through child care that is dependent upon the object of care. In addition, it may continue to change since the 9–12-month postpartum period is when a woman’s identity as a mother is established (Winnicott, 1958).

2. The impact of a child’s age and childbirth history on the 6 factors of the Attachment-Caregiving Balance Scale

Because caregiving is impacted by childbirth and parenting experience, many studies on attachment and caregiving only look at primipara. Even in this study, it was anticipated that caregiver development progresses along with parenting experience, and a longitudinal study was conducted to view that change. As noted earlier, change was seen in some factors, but not others. Looking at the impact of a child’s age shows that although no significant difference was seen in some aspects, there was significant change between 1 month and 3–4 months (Table 2). It is said that at 4 months postpartum maternal attachment peaks (Mercer, 1985) and a woman gains maternal confidence (Suzuki & Kobayashi, 2009), so this period can be considered a time when development as a caregiver advances.

However, only about 10% where “sensitivity: attachment” is $R^2=0.11$ and “sensitivity: caregiving” is $R^2=0.12$ can be attributed to a child’s age and childbirth history. Therefore, a child’s age and whether a mother has previously given birth are only partial impact factors. While there is a need to be aware of effective factors in caregiver development, this suggests a greater need to look at individual cases. The fact that there was a significant difference among phases in “sensitivity: caregiving” in multipara shows that even for multipara the relationship with the newborn is a first, and through parenting an older child is a partial accelerator for of the parenting experience, it cannot be said that multipara have it easy because they have parenting experience. As noted earlier, since the shift toward the caregiver system has already begun during puberty and pregnancy, and based on the fact that the emotional characteristics of the caregiver can be named as a mediation of caregiving factors other than sensitivity (Kazui & Endo, 2005), an individual’s personality characteristics and environmental factors must also be considered over the child’s age and childbirth experience. We cannot simply say that caregiver development is easier just because a woman has previously given birth, or that a caregiver develops with more parenting experience. Rather, each individual’s circumstances must be grasped and assistance given that is commensurate with that person’s development state.

Study Limitations & Future issues

Generalization of the development process is limited using only this scale since the caregiving system begins developing from puberty. In the future, influential factors should be explored while continuing the longitudinal study of the 6 factors in the Attachment-Caregiving Balance Scale to discover the kind of sup-
port needed and establish cutoff values for the 6 factors. If the cutoff values for the 6 factors can be established, then individual development states can be objectively assessed to determine the focus of support.

VI. Conclusion

During the period from 1 month to 6‒7 months postpartum, “adaptation: attachment” declined and “sensitivity: caregiving” increased. No difference was seen in “sensitivity: attachment” in the different phases, but a tendency toward increase was seen in multipara. Childbirth history and a child’s age were influential factors on caregiver development, but cannot be said to have a substantial impact. It has been suggested that in the development of the caregiving system where attachment factors are low and caregiving factors are high, the development process differs even within factors for attachment and caregiving. Development is thought to be linked to effective support measures that utilize the developmental state of each of the 6 factors and elements that impact them as one type of assessment material.

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Reference


目的
母親の養育システムの発達を測定する尺度として開発された「愛着—養育バランス」尺度の経時的変化をみることで、産後6〜7か月までの母親の養育者としての発達過程を明らかにし、発達状況に応じた支援策を講じるための基礎資料を得る。

方法
産後1か月健診を受診した母親に継続調査を依頼し、産後6〜7か月時までの調査で有効回答の得られた116名を分析対象とした。調査票はすべて郵送にて回収した。「愛着—養育バランス」尺度と出産歴および育児相談者の有無を調査内容とした。「愛着—養育バランス」尺度を構成する6因子の推移については元配置分散分析にて比較し、子どもの月齢や初産婦か経産婦かの6因子への影響を共分散構造分析にて確認した。

結果
6因子の中で初産婦・経産婦で有意差がみられたのは、産後1か月時で「適応：愛着」 「敏感性：愛着」 「敏感性：養育」、産後3〜4か月時と産後6〜7か月時に「敏感性：養育」であった。産後の3つの時期で有意差がみられたのは、初産婦で「適応：愛着」 「敏感性：養育」であり、経産婦で「敏感性：養育」であった。出産歴および子どもの月齢は6因子のいくつかに有意に影響していたが、推定値が0.2以上である。
ったのは、出産歴と「敏感性：愛着」、子どもの月齢と「敏感性：養育」のみであり、いずれも決定係数は1割程度であった。

結論
産後1か月から6〜7か月は、「適応：愛着」が低下し、「敏感性：養育」が上昇した。「敏感性：愛着」は時期での有意差はなかったが、経産婦の方が高い傾向がみられた。子どもの月齢や初産婦か経産婦かは、養育システムへの影響要因ではあったが強い影響とは言えなかった。以上より、養育者としての発達は、安易に初産婦・経産婦とか、子どもの月齢によって判断するのではなく、6因子それぞれの発達状況とそこに影響する要因をアセスメント材料の一つとして用いることで、有効な支援策に結びつくと考える。

キーワード：愛着—養育バランス尺度、養育システムの発達、母親