

# Influence of 'Emotions of preconception, prenatal, and breastfeeding for neonatal' on breastfeeding intention in mothers who conceived via assisted reproductive technology

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## Abstract

This study was performed to clarify the influence of 'Emotions of preconception, prenatal, and breastfeeding for neonatal' on the positive or negative 'Breastfeeding intention' of mothers that conceived via Assisted Reproductive Technology (ART) to explore the support for maternal role attainment from the perspective of breastfeeding. Twelve mothers (average age: 36.2 years) that conceived via ART and gave birth to single babies after a full-term pregnancy participated in this study. A sequential method was adopted. First, the data obtained by a semi-structured interview were analyzed using qualitative descriptive analysis. Then, text mining analysis was performed. Finally, the results of these analyses were interpreted synthetically. As a result, 'Emotions of preconception, prenatal, and breastfeeding for neonatal' was 13, with the 'Emotions arising from the conception process until delivery' and 13 with 'Emotions of womanhood or motherhood in meeting the newborn' were extracted. Breastfeeding deepened the mothers' emotions of motherhood and affection for their children, thereby increasing their 'Breastfeeding intention.' Furthermore, the presence of cryopreserved embryos had a large impact on 'Breastfeeding intention.' Therefore, to promote maternal role attainment in mothers conceiving via ART, it is important to provide sufficient support that allows for both mutual interaction between mothers and children through breastfeeding, and the decision to continue breastfeeding according to each mothers' individual intention.

## KEY WORDS

Assisted Reproductive Technology (ART) , Breastfeeding , Intention, Emotion , Sequential method

## Introduction

Breastfeeding is globally recognized as a lifelong health benefit for mothers and children, and 93.4% of pregnant Japanese women opt to breastfeed<sup>1)</sup>. However, since breastfeeding is heavily influenced by familial and societal circumstances<sup>2)</sup>, the decision is often not a choice made solely by the mother. Given this background, Shima, et al. conducted studies on <Breastfeeding intention><sup>3-4)</sup>. The results revealed that the emotions experienced from the mutual interaction between mothers and children through

breastfeeding had the largest impact on <Breastfeeding intention>, and that primipara mothers and mothers who did mixed feeding in every feed were unable to enjoy the mutual interaction or feel satisfaction in their performance, and thus tended to have difficulty with <Breastfeeding intention>.

With the popularization of Assisted Reproductive Technology (henceforth abbreviated as ART), the number of total treatments in Japan in 2014 was 393,745, resulting in 47,322 offspring, with 1 out of 21 being conceived

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via ART<sup>5)</sup>. Mothers who conceive via ART and carry the fetus to term tend to be anxious about miscarriage in early pregnancy, and it is known that such anxiety inversely correlates with adaptability to maternal roles<sup>6)</sup>. As for the relation between ART and breastfeeding, there are reports that show evidence of a low breastfeeding rate and a short duration of breastfeeding due to factors external to the conception process, such as abnormalities in conception and labor due to high age<sup>7-9)</sup>. There are also reports that for mothers who conceived via ART, breastfeeding is an especially significant factor in combatting the disappointments associated with the ART process<sup>10)</sup> and counteracting one's medical history of infertility<sup>11)</sup>. In other words, the experience and emotions of mothers during the preconception, prenatal, and neonatal periods affects not only breastfeeding, but also identity and maternal role attainment.

The present study focuses on the experiences and emotions of mothers who conceived via ART, and to clarify the "Emotions of preconception, prenatal, and breastfeeding for neonatal" and other relevant factors, and to demonstrate influence of Emotions of preconception, prenatal, and breastfeeding for neonatal" on the positive or negative <Breastfeeding intention> of mothers who conceived via ART. Following the results, to consider support for maternal role attainment from the perspective of breastfeeding.

The significance of this study is to focus on the emotions of mothers rather than on methods of nutrition, so that mothers can reflect on their emotions, and make choices based on the understanding of what is best suited for them and their children. This research is anticipated to promote maternal role attainment, elevate self-affirmation as a mother, and encourage mothers to face the anxieties of child-raising.

## Method

### 1. Definition of technical terms

1) "Emotions of preconception, prenatal, and breastfeeding for neonatal"

One's emotions toward things or other people throughout the conception process via ART until breastfeeding in the neonatal phase, including the process leading up to infertility treatment.

### 2) Breastfeeding

A method of child-raising in which breastmilk is fed

at least once a day, either directly from the breast or via pumped milk.

### 3) <Breastfeeding intention>

A mother's thoughts on breastfeeding in general, such as concerns about when to begin, how long to continue, when to stop, and other plans.

### 2. Study participants

Study participants were mothers who conceived via ART and gave birth to single babies after a full-term pregnancy. The selection criteria were that breastfeeding was not prohibited for medical reasons and that there was no history of mental illness.

We asked hospital staff to distribute booklets explaining the study outline and its ethical consideration to hospitalized mothers who satisfied the study criteria. A request for participation was made at the 1-month postpartum checkup.

### 3. Study method

#### 1) Design

A sequential method consisting of qualitative descriptive analysis and text mining analysis was adopted. To ensure the validity of the analysis results, text mining analysis was performed after analyzing the collected qualitative data, and then the results of those analyses were interpreted synthetically<sup>12)</sup>.

#### 2) Survey method

The data collection method was a semi-structured interview using an interview guide. Main interview guides are: ① Reason for receiving ART, ② Feelings upon conception, ③ Feelings upon delivery, ④ Reasons for starting to breastfeeding, ⑤ Feelings(emotions) during first breastfeeding, ⑥ Reasons for wanting to continue breastfeeding, ⑦ Reasons for wanting to discontinue breastfeeding, ⑧ Breastfeeding plans, ⑨ Experiences of awareness in being a mother, ⑩ Goals and prospects as a mother or a women.

Prior to the survey, a preliminary interview was conducted with a midwife and a nurse who became mothers via ART. Then, the contents of the interview guide and the interview technique were evaluated, and the effectiveness of the method was assessed with the cooperation of a nursing faculty member who specialized in maternity nursing and midwifery studies.

The survey was conducted from August 5 to December 17, 2016, during 1-month postpartum checkups. It took place at 3 obstetrics facilities in Japan that agreed to

cooperate with the study. Interviews were conducted in a private room with privacy secured, and recorded with an IC recorder upon the participants' consent. The interview time ranged between 26 and 54 minutes. We asked basic information of participants (participant's and husband's age, infertility treatment history, process of obstetric procedure, newborn's developmental process, and lactation) using a self-devised questionnaire.

### 3) Analysis method

From the collected data, a transcript was prepared and analyzed using qualitative descriptive analysis and text mining analysis.

#### (1) Qualitative descriptive analysis

Analysis was performed following Sato's "qualitative data analysis"<sup>13)</sup>.

① With an emphasis on the context, document segments were prepared by extracting from the transcript on a case-by-case basis, with a focus on "preconception, prenatal, and neonatal emotions and experiences" and "plans and expectations for breastfeeding".

② Codes were extracted from document segments in accordance with the comparison and categorization of all the participants, and a case-code matrix was prepared with the participants on the horizontal axis and the core context of each code on the vertical axis.

③ The contents of the case-code matrix were loaded and, for each code, patterns observed in more than 2 participants were categorized.

#### (2) Text mining analysis

SPSS Text Analytics for Surveys 4 was used.

① By adopting "sensitivity analysis" from the document segments, concepts (vocabulary) were extracted by restricting to nouns, verbs, and adjectives.

② Extracted concepts were categorized using a "method based on linguistics".

(3) Analysis of the impact "Emotions of preconception, prenatal, and breastfeeding for neonatal" has on <Breastfeeding intention>

The results of the qualitative descriptive analysis and text mining analysis were synthesized to grasp the overall picture, then the emotions experienced during the preconception, prenatal, and breastfeeding for neonatal periods, and other relevant factors, as well as their impact on <Breastfeeding intention>, were analyzed.

#### 4. Assurance of the certainty of study data

Reliability was secured by synthesizing qualitative

analysis and text mining analysis. Also, analyses were performed with the supervision of researchers specializing in maternal nursing and midwifery studies.

#### 5. Ethical consideration

The study was conducted with approval from the medical ethics review board of Kanazawa University (examination number 676-1), as well as the medical research ethics review board of the cooperating facility (20160026) or with the permission of the head of the facility.

Free will of the collaborators was respected and they were promised to be able to withdraw from the study at any point. Sufficient informed consent was gained, and a consent form was signed.

## Result

### 1. Outline of research participants (Table 1)

12 participants were interviewed for this research, 9 being primipara and 3 multipara, and the average age was 36.2 years. The duration of infertility treatment until the present pregnancy was 5 months to 7 years. All collaborators were breastfeeding.

2. Extraction of the "Emotions of preconception, prenatal, and breastfeeding for neonatal", and other relevant factors

#### 1) Qualitative descriptive analysis

19 codes were extracted from the document segments. A case-code matrix with the core contexts of the 19 codes on the vertical axis and 12 codes on the horizontal axis was prepared. Similar codes were combined, and "Preconception, prenatal, and breastfeeding for neonatal emotions" was identified 2 emotions of 'Emotions arising from the conception process until delivery' and 'Emotions of womanhood or motherhood in meeting the newborn'. Also, <Factors that affect influencing the "Preconception, prenatal, and neonatal emotions"> and <Breastfeeding situation> were each extracted. We describe later to detailed contents of 19 codes with later analysis.

#### 2) Text mining analysis

Concepts were extracted from the document segments and were categorized. The relationships among categorized concepts were summarized by a circular layout with thick and thin lines, and the strongly connected categories with a high overlap of responses were determined.

3) Extraction of "Emotions of preconception, prenatal, and breastfeeding for neonatal": synthesis of qualitative

Table 1. Outline of research collaborators

Participant	Age	Number of deliveries	Infertility treatment (months)	ART for the present pregnancy	Nature of breastfeeding at the time of interview
A	42	0	16	Frozen embryo transfer	Breastfeeding + several supplements per day
B	40	0	84	Intracytoplasmic sperm injection + frozen embryo transfer	Breastfeeding + several supplements per day
C	40	0	6	Frozen embryo transfer	Exclusive breastfeeding
D	38	0	36	Fresh embryo transfer	Exclusive breastfeeding
E	35	0	60	Frozen embryo transfer	Exclusive breastfeeding
F	34	0	62	Intracytoplasmic sperm injection + frozen embryo transfer	Breastfeeding + several supplements per day
G	34	0	24	Frozen embryo transfer	Exclusive breastfeeding
H	31	0	36	Frozen embryo transfer	Breastfeeding + supplements with every feed
I	31	0	7	Fresh embryo transfer	Breastfeeding + several supplements per day
J	38	1	5	Frozen embryo transfer	Breastfeeding + several supplements per day
K	35	1	14	Frozen embryo transfer	Exclusive breastfeeding
L	36	2	6	Frozen embryo transfer	Exclusive breastfeeding

descriptive analysis and text mining analysis (Table 2)

The relationship between the contents of the 19 codes from the qualitative descriptive analysis and the categorized concepts from the text mining analysis was examined. Where the relationship was unclear, the raw data was consulted. As a result, for “Emotions of preconception, prenatal, and breastfeeding for neonatal”, 13 emotions were extracted from “Emotions arising from the conception process until delivery”, and 13 emotions from “Emotions of womanhood or motherhood in meeting the newborn”.

4) “Emotions of preconception, prenatal, and breastfeeding for neonatal” and other relevant factors

(1) ‘Emotions arising from the conception process until delivery’

All 12 participants experienced miscarriage or a failure to conceive after an embryo transfer. After the embryo transfer, there was [Hope toward conception through ART]: “I can’t stop thinking about it; I am always thinking about it (A).” There was also [Disappointment in failure to conceive]: “I saw my husband looking disappointed when I told him I did not get pregnant (C)”; “I was disappointed. I even went to pray for it (F).” There was also [Resignation in recognizing the difficulty]: “I knew it wouldn’t work the first time (D).”

Even after conceiving, the majority of participants

spoke of an [Anxiety about miscarriage that outweighs the joy of conception]: “Half of me was anxious that I might miscarry again, the other half thinking maybe I can be happy (C).” Also, there were those who were [Nervous that the fetus’ heartbeat might stop], in reminiscing about their prior experience of miscarriage: “I did not feel alive until the heartbeat could be observed (G).” On the other hand, some expressed [Astonishment about the ability to conceive]: “I am more astonished than happy that I could do this (B).”

During pregnancy, the majority of mothers felt [Anxiety that something might happen to the fetus]: “Stomach didn’t feel hard, there was no morning sickness either; I was anxious if the baby was alive (B)”; “When I felt the baby might not be moving, I could not think about anything else (H).” However, some felt a [Emotions of peace knowing that the fetus is developing fine]: “Being able to feel the motion allowed me know it was alive, and I felt happy (F).” Others expressed an [Interest toward things other than pregnancy or the fetus]: “I am worn out taking care of work and home (D)”; “It’s difficult to juggle this and work (F).” Yet others expressed a [Resolution to accept whatever happens to the fetus]: “I went through treatment to have this child bestowed upon me; I should accept it (L).”

In childbirth, the majority of mothers expressed

Table 2. "Emotions of preconception, prenatal, and breastfeeding for neonatal"

Code name in case-code matrix	"Emotions of preconception, prenatal, and breastfeeding for neonatal"	Concepts categorized by text mining analysis	Corresponding participants	
'Emotions arising from the conception process until delivery'	Feelings up until conception	Hope toward conception through ART	"in vitro fertilization" "come out"	A,C,F,G,H
		Disappointment in failure to conceive	"understand" "egg collection" "one time" "child" "think" first time "me" "can do"	C,F,H
		Resignation in recognizing the difficulty	"feel" "there is" "curious" "pregnancy" "there is not" "become"	B,C,D,I,L
	Feelings upon conception	Anxiety about miscarriage that outweighs the joy of conception		A,C,G,H,J,K,L
		Nervous that the fetus' heartbeat might stop	"anxious" "happy" "can do" "me" "pregnancy" "think" "feel" "miscarriage" "heartbeat" "feeling" "such" "nervous"	D,E,F,G
		Astonishment about the ability to conceive		B,D,G,I
	Feelings during pregnancy	Anxiety that something might happen to the fetus		A,B,G,H,K,L
		Emotions of peace knowing that the fetus is developing fine	"anxious" "give birth" "baby" "healthy" "think" "big" "understand" "become"	B,C,D,F
		Interest toward things other than pregnancy or the fetus	"listen" "live" "work"	D,E,G,I,J
	Feelings upon delivery	Resolution to accept whatever happens to the fetus		C,I,L
		Relief that the delivery was successful		A,C,D,E,F,H,K,L
		Determination to raise the child well	"soon" "safe" "cry" "me" "mother" "become" "there is" "think" "understand" "listen" "face" "relief"	F,J
	Confusion about the situation		B,G	
'Emotions of womanhood or motherhood in meeting the newborn'	Emotions during first breastfeeding	Being moved by the baby's latching onto the breast on its own	"suck" "baby" "come out" "give" "great" "become" "think" "see" "listen" "feel"	A,C,G,H,I,J,K,L
		Anticipation that breastmilk will not come out	"good" "not very"	B,D,F
	Moments of awareness in being a mother	Sense of superiority in being recognized by the child as its mother	"hold" "cry" "mother" "become" "when giving" "is present" "there is" "child" "feel" "such" "there is not"	D,E,F,G,H,I,J,L
		Joy of having a new addition to the family		A,C,D,K
	Reasons for wanting to continue breastfeeding	Trust that breastfeeding is natural		A,D,G,H,J,K,L
		Confidence that breastmilk is indispensable for the baby	"suck" "milk" "raise" "breastmilk" "baby" "mother" "think" "try hard" "there is" "natural" "cry" "sleep" "body" "there is not" "growth" "understand" "conversation" "listen"	C,E,F,G,I
		Happiness in the realization of being a mother		B,C,D,E,H
	Reasons for wanting to discontinue breastfeeding	Deepening of love during each breastfeeding		A,D,I,J,L
		Frustration from difficulties in breastfeeding	"cry" "breastmilk" "become" "milk" "nipple" "crack" "there is" "think" "quit" "sleep" "understand" "middle of the night"	A,B,E,H,I,J,L
	Thoughts after ART	Gratitude and hope toward baby born via ART	"infertility treatment" "child" "think" "raise" "give birth" "good" "me" "do" "great" "become" "understand"	A,E,F,G,H,J,K,L
		Recognition that ART is nothing unusual		B,C,D,I
	Goals and prospects as a mother	Hope to enjoy the present with baby	"anxious" "baby" "me" "work" "mother" "do" "two people" "husband" "good" "is present" "there is" "sleep" "together"	D,E,F,H,I,J
Interest and hope about next pregnancy		"family" "become" "understand" "feeling" "today"	A,C,E,G,H,K	

[Relief that the delivery was successful]: *"I was relieved to hear the cry (E)."* Also, some mothers expressed a [Determination to raise the child well]: *"I was relieved, but also thought that from now on I should raise this child (F)."* On the other hand, there were mothers who were [Confusion about the situation]: *"It was too painful to feel anything (G)."*

(2) 'Emotions of womanhood or motherhood in meeting the newborn'

When breastfeeding for the first time, the majority of mothers felt a sense of [Being moved by the baby's latching onto the breast on its own]: *"I was very moved that the baby, while being so small, sucked milk well (L)."*; *"I was very delighted the baby was born this time, and latched on by itself (H)."* But several experienced [Anticipation that breastmilk will not come out]: *"I'm sorry, maybe not much milk is coming out (B)."*

As for the emotions of being a mother, there were expressions of a [Sense of superiority in being recognized by the child as its mother]: *"No matter who is holding her, s/he comes only to me for milk (E)."*; *"S/he stops crying when I hold her, and I realize it (I)."* In other words, holding or breastfeeding was an important occasion to realize being a mother. Also, participants felt the [Joy of having a new addition to the family]: *"I was anticipating continuing life without a child, so it is great to have him/her here (A)."*; *"When sleeping side by side, I was really happy that there is a new family member and everyone is fine (K)."*

All participants breastfed and wanted to continue. Many had [Trust that breastfeeding is natural]: *"From the beginning I wanted to breastfeed (A)."* Also, many mothers expressed that they were motivated to continue breastfeeding because of strong emotions from the breastfeeding experience, such as: [Confidence that breastmilk is indispensable for the baby], as in *"I really feel like I am raising him/her (G)."*; *"Thinking that s/he is growing with breastmilk makes me want to continue (I)."*; [Happiness in the realization of being a mother], as in *"I am truly glad to have given birth when I see him/her drink breastmilk (B)."*; *"I feel happy when breastfeeding (C)."*; and the [Deepening of love during each breastfeeding], as in *"How he/she drinks my milk is so lovely, and my affection grows (J)."* On the other hand, even though there were no mothers who wanted to discontinue breastfeeding, in the situations of nipple abrasion or pain,

and having to wake up numerous times during the night, they felt [Frustration from difficulties in breastfeeding]: *"Waking up in the middle of the night is tough, I want to sleep (E)."*

Having gone through ART and become mothers, the majority expressed [Gratitude and hope toward baby born via ART]: *"I just want the baby to grow up fine (A)."*; *"I am happy. There are people who cannot have children despite treatment (J)."* On the other hand, several mothers expressed [Recognition that ART is nothing unusual]: *"There are many people who receive treatment, not just us (B)."*; *"I do not think much about it because infertility treatment is not peculiar or something to be discriminated against (C)."*; *"Infertility treatment was not that difficult (I)."*

As for future plans and prospects, there were mothers who expressed the [Hope to enjoy the present with baby]: *"I want to enjoy life with this baby (H)."* On the other hand, many of the mothers who had cryopreserved surplus embryos from the present ART already had an [Interest and hope about next pregnancy]: *"In 6 months I want to begin treatment for the next pregnancy (A)."*; *"Although I am old, I want to receive treatment again (C)."*

#### 5) Summary

To grasp the overall picture, a chart depicting the relationship among concepts was prepared (Chart 1). 'Reason to receive infertility treatment', 'Reason to receive ART', 'Treatments received up until conception', 'Pregnancy process', 'Delivery process', 'Relation with husband', and 'Relation with one's surroundings', such as work environment and medical staff, had influence on "Emotions of preconception, prenatal, and breastfeeding for neonatal". Also, the experience of breastfeeding helped the participants realize their motherhood and deepen their affection toward their children, and led to the elevation of <Breastfeeding intention>.

However, the presence of cryopreserved surplus embryos from the present ART had a large influence on <Breastfeeding intention>, with the intention to continue breastfeeding only until the next treatment.

#### Discussion

1. Factors relevant to "Emotions of preconception, prenatal, and breastfeeding for neonatal"

In the conception process, the prior experience with miscarriage had a large influence on the mothers'

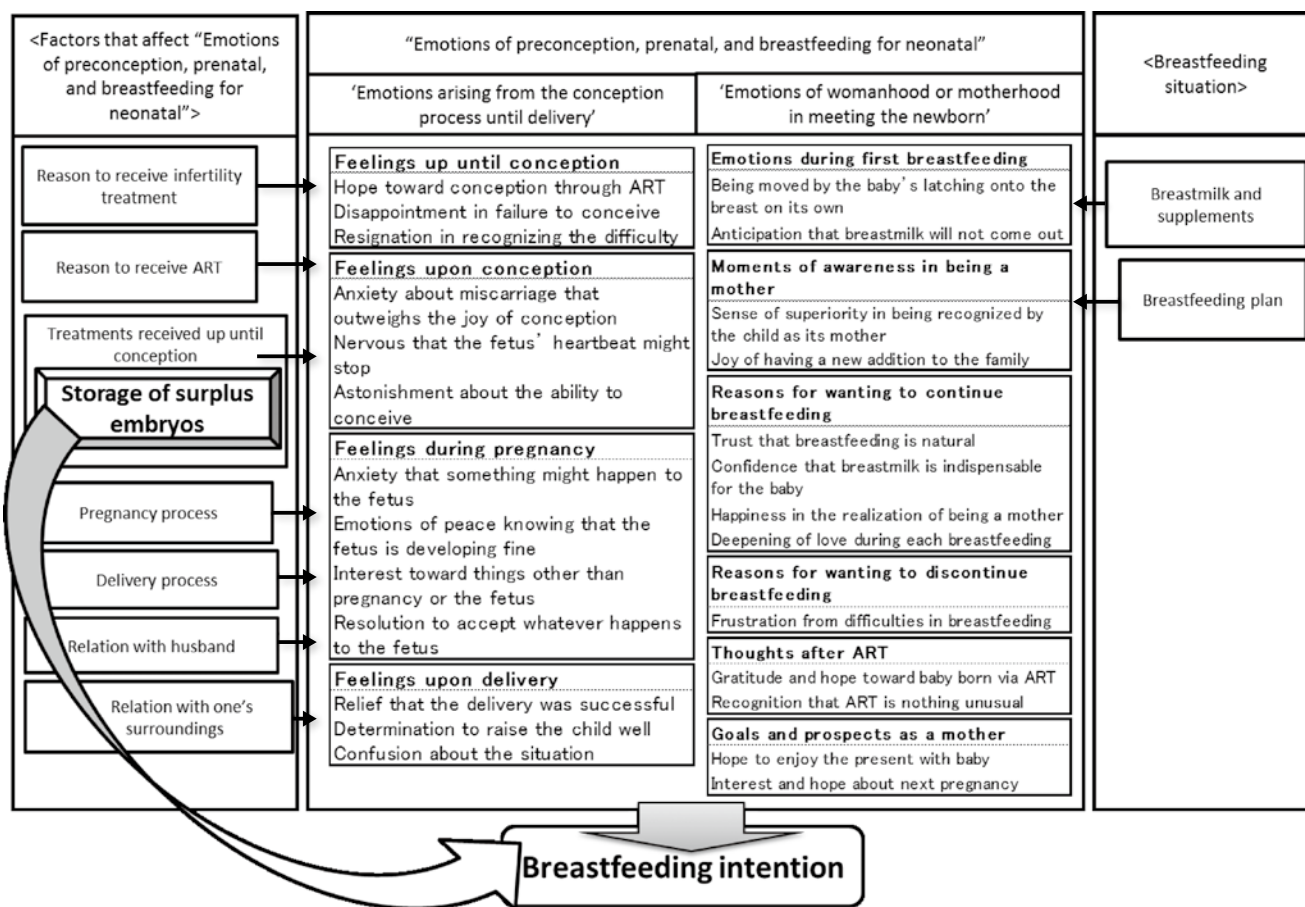


Chart 1 "Emotions of preconception, prenatal, and breastfeeding for neonatal" and "relevant factors" in mothers who became pregnant and gave birth after ART, and their influence on "breastfeeding intention"

emotions. In particular, there was a constant anxiety and nervousness about miscarriage during the early stages of pregnancy. Women who became pregnant after ART tended to experience more anxiety and stress about miscarriage than women who conceived naturally<sup>14)</sup>. Also, because conception with ART often involves abnormalities, such as gestational diabetes, gestational hypertension, preeclampsia, placenta previa, preplacental abruption, premature birth, and low birth weight<sup>15)</sup>, the continuation of pregnancy is uncertain and exacerbates the anticipatory anxiety that the baby might be lost again. However, the participants in this study had no significant abnormalities in their pregnancy. Signs of development, such as fetal movement, allowed the mothers to know this time was different from the prior experience, thereby to relieving anticipatory anxiety. Therefore, for mothers who became pregnant after ART, the sense of assurance that the pregnancy and the child are well allows them to overcome their past experience and adopt a positive

attitude about the current pregnancy; this mindset can be thought to lead to the acceptance of whatever happens to the child.

Most of the participants had relatives or coworkers who had received infertility treatment. Thus, they understood their situation objectively, and were not critical of ART. Given the gradual increase of ART participants in Japan, it is anticipated that conception and delivery with ART will become increasingly familiar. It is therefore important to provide support that would allow for a positive awareness about the conception process, allowing recipients to feel that ART was the best way to have the baby.

2. The impact of "Emotions of preconception, prenatal, and breastfeeding for neonatal" on <Breastfeeding intention>

The participants of the present study had various delivery methods, but they had all made the decision to breastfeed before giving birth. Also, observing the child's behavior that s/he displayed only during breastfeeding

led to the realization of motherhood, and strongly affected <Breastfeeding intention>. This confirmed Shima, et al.'s observation that emotions associated with breastfeeding directly affects a mother's intention<sup>3-4</sup>). Therefore, interaction between mother and child through breastfeeding is an important experience for the mother to attain identity as a mother, leading to motherly role attainment.

While there was positive <Breastfeeding intention>, the presence of cryopreserved surplus embryos also had a strong influence. Regarding the results of embryo transfer, there are many reports about an increased chance of pregnancy due to progesterone injections<sup>16</sup>). But, since prolactin, which promotes lactation, suppresses the progesterone needed for continued pregnancy, it is often advised to stop breastfeeding before an embryo transfer. It is a matter of course that mothers who have no other option than ART would opt to discontinue breastfeeding and instead concentrate on treatment. Also, since conception and continuation of pregnancy becomes more difficult with age, it is expected that one would want to begin treatment as soon as possible out of concern for their children's well-being and prospects. That is to say, the mother's awareness of her chances of future pregnancy affects her <Breastfeeding intention>. Breastfeeding is not only the most nutritious for infants, but also has various other benefits, such as increased mental wellbeing for both the mother and child. Therefore, it is important to provide mothers with various options and information regarding breastfeeding so that they can decide for themselves what is best for them and their children.

The participants of this study included mothers above 35 years of age, but there were no significant differences among them in breastfeeding circumstances at 1-month postpartum, or in the 'Emotions of womanhood or motherhood in meeting the newborn'. This absence of significant differences is suggestive of a healthy process of motherly role attainment without health issues that entail discontinuation of breastfeeding. In Japan, adoption of ART in older infertile women is very high<sup>5</sup>), and the risk of pregnancy and childbirth increases with age. Breastfeeding for mothers over 35 is anticipated to be difficult, since pregnancy over age 35 is an aggravating factor for fatigue during early puerperium<sup>17</sup>), there is high risk of postpartum depression before discharge,

and the process of maternal role attainment is not advanced<sup>18</sup>). Therefore, for mothers who become pregnant and gave birth after ART, especially older mothers, preservation of mental and physical health is important for the continuation of breastfeeding and maternal role attainment.

3. Breastfeeding support for maternal role attainment in mothers who became pregnant and gave birth after ART

Pregnancy after ART tends to involve uncertainty about the continuance of the pregnancy, strong anticipatory anxiety about the condition of fetus or continuance of the pregnancy<sup>19</sup>), and emotional stress<sup>20</sup>). Therefore, in order to alleviate anxiety, it is necessary to prevent abnormalities during pregnancy, as well as provide information on breastfeeding with an understanding of how the mothers think about ART and the continuation of the pregnancy.

In the participants of mothers who became pregnant and gave birth after ART, while they wish to continue breastfeeding, there coexists another "intention" to discontinue breastfeeding upon beginning the next ART. Mothers who gave birth after ART experience a lower sense of identity due to the stigma of infertility even after having given birth<sup>21</sup>). That a mother must discontinue breastfeeding for the sake of the next ART, despite the intention to continue breastfeeding due to the strong emotions gained from interacting with the child, acts as a reminder of her infertility and impacts her maternal role attainment. Therefore, it is important to offer sufficient support to let mothers experience interaction with their children through breastfeeding, and also to support them in making their own decisions based on their <Breastfeeding intentions>.

#### 4. Limitations and future tasks

The ages of the participants (early 30s to early 40s), backgrounds, and treatment history were varied. By unifying the study criteria, the characteristic emotions of mothers who became pregnant and gave birth after ART can be better identified.

#### Conclusion

With 12 mothers who became pregnant and gave birth after ART as study participants, the influence of "Emotions of preconception, prenatal, and breastfeeding for neonatal" and relevant factors on <Breastfeeding intention> was analyzed. As a result, two major emotions toward preconception, prenatal, and neonatal periods



can be extracted: 'Emotions arising from the conception process until delivery' and 'Emotions of womanhood or motherhood in meeting the newborn'. Also, through the experience of interacting with infants, mothers developed their sense of motherhood and a deeper affection for their children, thereby elevating <Breastfeeding intention>. Presence of cryopreserved embryos also affected

<Breastfeeding intention>.

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## 生殖補助医療後に妊娠・出産した母親の妊娠成立過程からわが子への母乳育児に至るまでの感情が母乳育児の意思に及ぼす影響

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### 要 旨

本研究は、生殖補助医療（ART：Assisted Reproductive Technology）後に妊娠・出産した母親を対象として、『妊娠成立過程から母乳育児に至るまでの感情』と関連要因、および、『妊娠成立過程から母乳育児に至るまでの感情』が母乳育児を「したい、続けたい」もしくは「したくない、やめたい」という＜母乳育児の意思＞に及ぼす影響を明らかにすることを目的とした。その結果をふまえ、母乳育児の視点から、ART後に妊娠・出産した母親への母親役割獲得支援について検討した。対象は、ART後に妊娠が成立し、正期産で単胎出産した母親12名（平均年齢36.2歳）である。研究方法は、半構造化面接で得られたデータの質的記述的分析の後に、テキストマイニングによる分析を行い、それらの分析結果を解釈の段階で統合する、順次的研究方略とした。その結果、『妊娠成立過程からわが子への母乳育児に至るまでの感情』として、「妊娠から出産を乗り越える過程で生まれる感情」からは13、「わが子と対面して実感する女性・母親としての感情」からは13の感情が抽出された。また、母乳育児の体験や状況によって、母親になったという実感や、児への愛情が深まり、「母乳育児を続けたい」という＜母乳育児の意思＞が高まっていた。さらに、凍結胚の保存の有無が、＜母乳育児の意思＞に大きな影響を与えていた。そのため、ART後に妊娠・出産した母親への母親役割獲得に向けて、母乳育児を通した母子相互作用を実感できるような支援を十分に行うとともに、その母親が自分の＜意思＞によってその後の母乳育児を決定できるような支援が重要である。