

Psychological Changes in the First Trimester of Pregnancy and Role in Couples for New Family Formation among Primiparous Women

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Abstract

Purpose: The purpose of this study was to identify the psychological changes experienced by pregnant women during the first trimester in order to establish a new family among married primiparas. **Method:** A qualitative descriptive study was conducted by semi-structured interviews with 15 married primiparous women attending antenatal health examinations at four medical facilities in the Tokyo metropolitan area. **Result:** The findings revealed six key categories: “Acceptance of pregnancy,” “Anxiety about the pregnancy process,” “Lack of knowledge about transitioning to motherhood,” “Emotional support,” “Relationship transition from a couple to parents,” and “Adjustment of the living environment to welcome the new baby.” A total of 18 subcategories and 66 codes were identified. **Conclusion:** The results suggest that it is necessary to increase learning opportunities for couples to acquire the knowledge about pregnancy, childbirth, and childcare from the first-trimester pregnancy. Additionally, incorporating opportunities in prenatal education for couples to discuss and reflect on their roles as mothers and fathers can help them share responsibility for childcare and actively participate in co-parenting.

Keywords

Marriage Pregnant Women, Primipara, First-Trimester Pregnancy, Psychology, Marital Relationships

1. Introduction

In contemporary Japan, the declining birthrate, aging population, shift to nuclear families, and increasing number of women pursuing higher education and entering the workforce have resulted in fewer opportunities to meet with mothers rais-

ing children. Pregnancy and childbirth do not always bring positive emotions for women. Factors, such as unexpected pregnancies, strained relationships with spouses, and experiences of loss, can contribute to feelings of anxiety and embarrassment, even in cases of long-awaited pregnancies [1].

Since 2015, Japan has been working on “Healthy Parents and Children 21 (2nd stage)” as a national movement for maternal and child health, and one of the fundamental issues is “health measures for expectant and nursing mothers and infants without interruption” [2].

In the “Report of the Study Group on the Interim Evaluation of the 21st (Secondary) Plan for Healthy and Happy Parents and Children” in Fiscal 2020, mental health care for pregnant women was identified as a major concern [3]. Since 2023, “Healthy Parents and Children 21 (2nd stage)” has been positioned as a national movement under the Basic Policy on Child Health and Medical Care, and requires prenatal education based on the psychological characteristics of pregnant women. In Japan, we have been working on the “Healthy Parents and Children 21 (2nd round)” since 2015, in the interim evaluation in Fiscal 2020, the enhancement of mental health care for expectant and nursing mothers became a major issue [2] [3]. As a result, professionals involved in maternal and child health care are required to provide care based on the psychological characteristics of pregnant women.

An international study on perinatal mental health found that prenatal education for pregnant couples, which included learning communication, coping skills, and parenting skills to strengthen the marital and parent-child relationships, reduced depression, anxiety, and stress of becoming a parent among mothers during the first 12 weeks postpartum [4]. This important finding highlights that improving couples’ communication and coping skills during pregnancy, as well as maintaining and enhancing parenting skills, can help stabilize the mental health of expectant mothers and support their mental well-being during pregnancy. In Japan, prenatal education for pregnant women and their husbands is widely available. However, it primarily focuses on lectures about pregnancy and childbirth, as well as simulated experiences of pregnancy [5], with few programs addressing the psychological characteristics of pregnant women. Research indicates that 16% of pregnant women suffer from depression during pregnancy, with more than 70% of cases occurring in the first trimester [6].

However, the psychological aspects of first-trimester pregnancy are often regarded simply as a natural psychological response to early pregnancy. Few studies have specifically examined the psychological experiences of women during the first-trimester pregnancy, and the psychological changes they undergo because of pregnancy remain largely unknown.

In particular, primiparas are unable to envision themselves as future mothers and have limited access to reliable sources of advice [7]. Therefore, the purpose of this study was to examine married primiparas and identify the psychological changes in pregnant women in the first trimester. Understanding these psycho-

logical changes in relation to the establishment of a new family is essential for maintaining and strengthening the marital relationship. Additionally, it is important to clarify nursing practices that can foster the couple's attachment to the fetus from the first-trimester pregnancy.

2. Methods

2.1. Research Design

Qualitative descriptive study.

2.2. Data Collection Period

The data collection period was between December 2021 and June 2022. An online interview survey was conducted during the early pregnancy period (10 - 15 weeks).

2.3. Study Subjects

The study subjects were those attending antenatal health examinations at four medical facilities in the Tokyo metropolitan area. The pregnancies of the subjects were spontaneous pregnancy, planned pregnancy, and infertility treatment. Inclusion criteria were: 1) married 2) primipara, and 3) first-trimester pregnancy (10 - 15 weeks). Exclusion criteria were: 1) those with a history of mental illness, and 2) those who could not speak Japanese.

2.4. Survey

2.4.1. Interview Content

The interviews were semi-structured, using an interview guide. The interview guide consisted of three items: 1) Feelings after confirmation of pregnancy, 2) Feelings about the couple's relationship after becoming pregnant, and 3) Thoughts about establishing a new family, with additional explanations provided as necessary. Additionally, the study participants were asked to provide demographic information, including age, number of weeks of pregnancy, and employment status.

The specific questions asked using the interview guide were as follows.

- How do you feel now that your pregnancy has been confirmed?
- What are your feelings toward your husband throughout your pregnancy?
- What specific communication do you have with your husband regarding the birth of your child?
- What are your wishes for your husband in order to welcome the child?

2.4.2. Conducting the Interviews

The interviewers were qualified midwives. They were required to have sufficient experience to deepen their psychological and social understanding of pregnant women. Specifically, the selection criteria were professionals with more than 10 years of experience as midwives and advanced midwifery qualifications. This ensured the quality and reliability of the data obtained through the interviews.

The interviews were conducted using Zoom in a one-on-one format between

the interviewer and the participant. During the interviews, Zoom screen sharing was permitted only with the participant's consent, and the data was recorded using Zoom or an IC recorder with the participant's consent.

2.5. Analysis Method

This study was a step-based qualitative descriptive analysis of qualitative data [8]. A verbatim transcript was created from the interview data, and codes, subcategories, and categories were extracted. Throughout the analysis process, we received supervision from several experts in qualitative research to ensure the credibility and validity of the findings.

2.6. Ethical Consideration

A midwife at the outpatient obstetrics clinic distributed a brochure to potential research participants during their antenatal health examination. The brochure outlined the purpose of the study, research methods, privacy protection measures, and the voluntary nature of participation. At the end of the antenatal health examination, the principal investigator verbally explained the study to the potential participants. The ideal interview duration for pregnant women, as conducted by outpatient midwives, was reported to be between 5 and 30 minutes [9]. Since this study was conducted with pregnant women in their first trimester, when symptoms of morning sickness were likely emerging, the interview duration was set to a minimum of 10 - 15 minutes. We also informed the participants that if they felt unwell during the interview, it could be paused at any time. Additionally, they were assured that they were not required to answer any questions they did not wish to answer.

After confirming the explanation of the research purpose and ethical considerations, individuals who agreed to participate were selected as research subjects, and an online interview survey was requested. For the interview survey, a two-dimensional code was distributed by midwives in the obstetric outpatient clinic, which allowed the study subjects to receive the Zoom account details via email. Participants were asked to enter their Participant's identification number (ID), name, email address, and preferred date and time of the interview. To ensure anonymity, names and email addresses were coded to the assigned participant IDs.

3. Results

3.1. Attributes of the Study Participants

The attributes of the study subjects are shown in **Table 1**. Study participants were 15 married primiparas; the mean age was 31.6 (28 - 37) years, the mean number of weeks of pregnancy was 10.7 (10 - 11) weeks, and the working status was 11 working full-time, 3 part-time, and 1 self-employed.

The psychological changes experienced by the study participants during their first-trimester pregnancy were categorized into three main themes: 1) Feelings after confirmation of pregnancy, 2) Feelings about the couple's relationship after

Table 1. Attributes of the study participants.

ID	Age	Pregnancy weeks	Employment status	Interview/minute
1	28	10	Full-time	10
2	37	11	Full-time	10
3	28	11	Self-employed	10
4	35	11	Full-time	15
5	33	10	Full-time	13
6	33	11	Full-time	10
7	36	10	Full-time	10
8	32	11	Part-time	15
9	36	11	Part-time	13
10	28	11	Full-time	15
11	37	11	Full-time	10
12	29	11	Full-time	11
13	27	11	Part-time	10
14	28	10	Full-time	12
15	28	11	Full-time	12

ID: Participant's identification number.

becoming pregnant, and 3) Thoughts on establishing a new family.

A total of 66 codes, 18 subcategories, and 6 categories were identified. The categories are presented as “ ”, subcategories are indicated with < >, and codes are shown in []. Additionally, the researcher reviewed the context, and any supplemental information was provided in parentheses ().

3.2. Feelings after Confirmation of Pregnancy

A total of 3 categories, 8 subcategories, and 33 codes were identified regarding the feelings experienced after confirmation of pregnancy (Table 2).

Pregnant women whose pregnancy was confirmed expressed feelings such as [I'm happy to be pregnant because I was undergoing fertility treatment] and [I'm happy to have a baby because I've always wanted a child]. They felt <Happy to have found out I was pregnant > and had positive feelings about the birth of a new life. Positive emotions also included [I imagine my baby will be cute] and [I want to feel my baby's movements as soon as possible], suggesting that they felt a strong bond to the fetus and developed <Attachment to the fetus> upon learning of their pregnancy. Furthermore, the desire to share their pregnancy with family members emerged, as indicated by [I want to share my pregnancy news with my parents and in-laws and ask for their advice], leading to the formation of the subcategory <Wanting to share my pregnancy with my relatives>. These positive emotions surrounding pregnancy formed the foundation for the category “Acceptance

Table 2. Feelings after confirmation of pregnancy.

Category	Subcategory	Code	ID
Acceptance of pregnancy	Happy to have found out I was pregnant	I'm glad I got pregnant naturally	1
		I'm happy to be pregnant because I was undergoing fertility treatment	2
		I'm happy to have a baby because I've always wanted a child	3
	Attachment to the fetus	I imagine my baby will be cute	4
		I can't wait to meet my baby	4
		I hope my baby develops normally until birth	1, 3
		I want to enter the stable phase of pregnancy as early as possible	5
		I want to feel my baby's movements as soon as possible	6
		I feel encouraged when I see my baby on the ultrasound	7
		Both my husband and I hope for our baby's healthy development	5
I'm becoming more curious about my baby's sex	8		
Wanting to share the pregnancy with relatives	I want to make my parents and in-laws happy with my pregnancy	9	
	I want to share my pregnancy news with my parents and in-laws and ask for their advice	10	
Anxiety about the pregnancy process	Anxiety about miscarriage or stillbirth	I'm worried about whether my baby's heart will keep beating until the next prenatal checkup	11, 13
		I'm worried about whether my baby will continue developing until delivery	5
		I'm concerned about my baby's development since I have no symptoms of morning sickness	9
	Anxiety about the health of the fetus	There was a time when I was at risk of having a miscarriage	2, 3, 10, 11
		I'm worried about this pregnancy because I've had a previous miscarriage	9, 12
		I am worried that I might have a miscarriage if I carry heavy things at work.	12
		I'm worried about having a healthy baby	13
		I feel anxious about whether I will be able to accept and raise a baby with a disability if a congenital disease is discovered	14
I'm worried about my baby's health due to my older age pregnancy	10		
Lack of knowledge about transitioning to motherhood	Problems in coordinating work with pregnancy	I don't know how to coordinate my work with my workplace when I have severe morning sickness	1, 13
		I want to continue working, but I'm worried about how I will manage both work and pregnancy	5
		I feel frustrated that I can't work as much as I did before becoming pregnant	14
		I have to consider quitting my job while I am pregnant	2
		I haven't informed my workplace about my pregnancy yet	13

Continued

Seek to be a good parent	I want to raise my child with respect, but I can't imagine how to interact with them	1
	I don't feel a sense of responsibility as a parent, and I'm not sure if I can be one	15
Lack of knowledge about pregnancy	Pregnancy is an unknown experience for me, and I don't know anything about it	13
	I can't imagine what life will be like during pregnancy.	9
	I don't know how to take care of myself during pregnancy	15
	I don't feel like I am carrying a baby in my belly	9,15

ID: Participant's identification number.

of pregnancy”.

On the other hand, pregnant women in the first trimester also experienced anxiety. They expressed <Anxiety about miscarriage and stillbirth> because [There was a time when I was at risk of having a miscarriage]. Additionally, concerns about the baby's health emerged under <Anxiety about the health of the fetus> such as [I feel anxious about whether I will be able to accept and raise a baby with a disability if a congenital disease is discovered]. These findings indicate that first-trimester pregnancies involve not only positive emotions but also “Anxiety about the pregnancy process,” indicating a mixture of positive and negative feelings.

Furthermore, pregnant women faced <Problems in coordinating work with pregnancy>, expressing difficulties such as [I don't know how to coordinate my work with my workplace when I have severe morning sickness] and [I feel frustrated that I can't work as much as I did before becoming pregnant]. Furthermore, Additionally, the women began to <Seek to be a good parent> voicing concerns like such as [I want to raise my child with respect, but I can't imagine how to interact with them] and [I don't feel a sense of responsibility as a parent, and I'm not sure if I can be one]. As they accepted their pregnancy and reflected on their new role, some women also felt a <lack of knowledge about pregnancy> realizing [Pregnancy is an unknown experience for me, and I don't know anything about it] and [I don't know how to take care of myself during pregnancy]. These uncertainties highlighted a new challenge: “Lack of knowledge about transitioning to motherhood”.

More details on this category are given below.

“My husband and I have been married for two years and we knew we wanted to have a child by now, so I am happy that we were able to conceive naturally as planned. I don't usually feel the presence of a baby in my belly, but I hope the baby will grow well until delivery. Lately, I sometimes feel like I can't take the train to work when morning sickness is bad. I am having a hard time knowing how to adjust my next work schedule. If I can have a successful delivery, I want to raise my child with respect. However, I can't imagine how to deal with my child because she is not my alter ego. (ID1)”

“Now that I am pregnant, I can’t stop worrying about what I would do if my baby were diagnosed with a congenital disease. I would like to have my baby, even if they have a disability, but both my husband and I are unsure whether we would be able to fully accept and support them. This uncertainty fills us with anxiety. Since becoming pregnant, I have found myself unable to do the work I used to manage before. I feel sorry for my colleagues and frustrated with myself. (ID14)”

3.3. Feelings about the Couple’s Relationship after Becoming Pregnant

A total of 2 categories, 8 subcategories, and 24 codes were identified regarding couples’ feelings about their relationship (Table 3).

Pregnant women felt that their husbands showed <Mental Attention> by comments such as [My husband encourages me when I worry about the baby’s development] and [My husband says kind words to help me rest when I am not feeling well]. In addition, they perceived <Mental Attention> by their husbands’ daily actions, such as [My husband makes me hot soup to calm me] and [My husband prepares meals for me, considering the nutrients I need during pregnancy]. Pregnant women also recognized <Mental Attention> in their husbands’ contributions to household chores, such as [My husband cleans the bathtub and washes the dishes]. These actions contributed to the category “Emotional support”.

From the first trimester, couples also engaged in <Sharing information about fetal development>, as reflected in statements such as [I share information with my husband about the baby’s development that I learned about during the pregnancy health examination] and [I talk with my husband about the baby’s development by comparing it with the information on the app]. The results indicated a growing interest in the baby among respondents. This shared interest led to conversations about parenting approaches, such as [Talking about parenting while respecting the child’s opinions] and [Talking about parenting while balancing work and childcare]. It was found that the process of increasing couple’s interest in their children was linked to <Exploring the images of mothers and fathers>. Furthermore, after discovering they were expecting, couples were actively considering <Adjustment of the living environment with a view to child rearing>, as seen in statements such as [Preparing to move to a new house after the baby is born, considering the house layout] and [Researching living environments that are close to daycare centers and are easy to raise children]. These findings indicate that they are positively considering <Adjustment of the living environment with a view to child rearing> for welcoming a new life. The adjustment toward child-rearing was not limited to the living environment, but also developed into a <Discussions regarding child support>, such as [My husband talks about how financially challenging it will be after the baby is born] and [Discussing whether to enroll in an educational insurance plan]. The process of discussing financial matters from the perspective of father and mother deepened the “Relationship transition from couple to parent”.

Table 3. Feelings about the couple's relationship after becoming pregnant.

Category	Subcategory	Code	ID	
Emotional support	Mental Attention	My husband encourages me when I worry about the baby's development	15	
		My husband says kind words to help me rest when I am not feeling well	11	
		My husband advises me to take a day off from work when I have morning sickness	3	
		My husband accepts me when I am not feeling well due to morning sickness	9	
		When we are walking together, my husband asks me to take breaks	13	
	Attention to meals	My husband makes me hot soup to calm me	11	
		My husband prepares meals for me, considering the nutrients I need during pregnancy	9, 12	
		My husband researches and teaches me how to eat when I have morning sickness	15	
		My husband cooks meals for me when I'm not feeling well due to morning sickness	15	
	Attention to general housework from the husband's initiative	My husband willingly does grocery shopping	2	
		My husband cleans the bathtub and washes the dishes	3, 7, 15	
		My husband carries heavy things for me	9	
	Relationship transition from couple to parents	Sharing information about fetal development	I share information with my husband about the baby's development that I learned about during the pregnancy health examination	7
			I talk with my husband about the baby's development by comparing it with the information on the app.	1
		Exploring the image of mothers and fathers	Talking about parenting when a child is diagnosed with a developmental disability	13
Talking about parenting while respecting the child's opinions			3	
Talking about parenting while balancing work and childcare			13	
Adjustment of the living environment with a view to child rearing		Preparing to move to a new house after the baby is born, considering the house layout	15	
		Researching living environments that are close to daycare centers and are easy to raise children	10	
Discussions regarding child support		My husband has voluntarily stopped smoking indoors	8	
		My husband reassures me that we don't have to worry about finances	15	
		My husband talks about how financially challenging it will be after the baby is born	4	
	Discussing whether to enroll in an educational insurance plan	10		
		Discussing the cost of childcare expenses for raising a child	5	

ID: Participant's identification number.

More details on this category are given below.

"When I worry about whether the baby will grow up well and talk to him about it, he encourages me, saying that it will be fine. I get upset over little things, but I really appreciate that he listens to me. When I have morning sickness and can't eat for a long time, he prepares food that is easy for me to eat. And even when I can't eat because of morning sickness, she makes me food that is easy to eat and

nutritious. My husband lived alone before we got married. He can do general housework such as cleaning the bathroom and washing dishes. He also takes out the trash and has done more housework than I have since I found out I was pregnant. We are discussing moving before the baby is born because the place we are living now is too small and we are considering the layout and arrangement of the house after the baby is born. My (husband) has told me not to worry about finances. (ID 15)”

3.4. Thoughts on Establishing a New Family

A total of 9 codes, 3 subcategories, and 1 category were extracted regarding how couples think about establishing a new family after confirming the pregnancy (Table 4).

Table 4. Thoughts on establishing a new family.

Category	Subcategory	Code	ID
		I want us to learn together about what to be aware of during my pregnancy.	10
	Desire to share feelings about life during pregnancy with their husbands	I would like your opinion on how to spend my time during pregnancy	1
		I want to discuss any concerns I have about my pregnancy	15
		I want to discuss when to come home	8
Adjustment of the living environment to welcome the new baby	Consider roles and division of housework and childcare with their husbands	I want to discuss how much my husband can help with household chores during pregnancy	2
		I want to ask my husband how much he is willing to cooperate in raising our child after birth	9
		I want to discuss whether to ask my mother or mother-in-law for postpartum support	11
	Desire to discuss the use of social resources with their husbands	I would like to gather information about local social resources together and discuss postpartum support systems	10
		I would like to talk with my husband about whether he can take parental leave	6, 12

ID: Participant’s identification number.

From the first trimester, pregnant women expressed a <Desire to share feelings about life during pregnancy with their husbands>, as reflected in statements such as [I want us to learn together about what to be aware of during my pregnancy] and [I want to discuss any concerns I have about my pregnancy]. Additionally, they wanted to <Consider roles and division of housework and childcare with their husbands>, including [I want to ask my husband how much he is willing to cooperate in raising our child after birth] and [I want to discuss whether to ask my mother or mother-in-law for postpartum support]. Furthermore, pregnant

women expressed an interest in “Adjustment of the living environment to welcome the new baby”. They expressed interest in gathering information and planning for postpartum support, as seen in statements like [I would like to gather information about local social resources together and discuss postpartum support systems] and [I would like to talk with my husband about whether he can take parental leave]. These responses indicate that they not only <Consider roles and division of housework and childcare with their husbands >, but also <Desire to discuss the use of social resources with their husbands>.

These findings indicate that pregnant women’s approach to establishing a new family is centered on “Adjustment of the living environment to welcome the new baby”. The results suggest that that pregnant women focus on creating a supportive environment for childbirth and parenting, not only by adjusting their living space but also by establishing a cooperative framework with their spouses and utilizing available social resources.

More details on this category are given below.

“I’ve been reading and learning about things to watch out for during pregnancy. However, my husband doesn’t seem to know what to watch out for during pregnancy. So, I want to take a parents’ class with him to learn about pregnancy. I am worried about my postpartum life. I would like to gather and discuss information together with him so that we can get support from the city health center for our postpartum life. (ID10)”

4. Discussion

The psychological changes that married primiparas experience during the first trimester of pregnancy, along with their implications for nursing care and the role of healthcare providers in offering support during this critical period, are examined.

4.1. Attributes of Study Subjects

In general, primiparas tend to experience more anxiety related to the circumstances of pregnancy itself rather than anxiety stemming from their own personality traits unrelated to pregnancy [7].

Working pregnant women may experience conflicts in balancing both work and family roles, and studies have reported that their employment status during pregnancy can have a significant impact on them [10]. While some working pregnant women appreciate changes in their work responsibilities, adjustments to their working hours, and other modifications to their work situation compared to before pregnancy, they may also experience confusion and difficulty adapting to these changes [11] [12]. In this study, the participants were all primiparas, with approximately 74% employed as full-time workers. Therefore, it can be assumed that this group experienced high levels of anxiety related to pregnancy, as well as physical and psychological burdens associated with balancing pregnancy and work life. Regarding marital satisfaction, studies have shown that it is significantly

lower in pregnancy-preceding marriages, in which the couple marries after pregnancy, compared to nonpregnancy-preceding marriages, in which the woman becomes pregnant after marriage [13] [14]. Since the participants in this study were all in nonpregnancy-preceding marriages, it can be inferred that they had relatively high marital satisfaction and strong relationships with their spouses.

4.2. Psychological Changes Pregnant Women Undergo in the First Trimester

Pregnancy and childbirth are major life events that bring significant changes to a woman's lifestyle. This period is also considered a time of crisis due to physical transformations, the transition from a woman to a mother, and shifts in social roles [15]. However, pregnancy can be embraced when a woman develops a positive perception of both herself as an expectant mother and her unborn child [16]. Therefore, supporting women in accepting themselves positively and embracing their pregnancies is essential for a smooth transition to motherhood. The participants in this study felt <Happy to have found out I was pregnant>, and they were able to achieve "Acceptance of pregnancy" by perceiving their pregnancies in a positive light. In addition, primiparas find value in their pregnancies due to the positive approval of their own mothers. Additionally, previous research has shown that primiparas find a sense of value from their pregnancy when they receive positive approval from their mothers [17]. Based on these findings, healthcare providers should offer support that promotes "Acceptance of pregnancy" by helping them view their pregnancy in a positive way. Moreover, since many pregnant women express a strong desire to share their pregnancy news not only with their husbands but also with their families, it is important to provide support that acknowledges their feelings of <Wanting to share the pregnancy with relatives>, particularly with their parents and parents-in-law, to strengthen emotional connections and enhance psychological well-being.

The subjects in this study felt joy at the confirmation of their pregnancy, but at the same time, they also felt "Anxiety about the normal course of pregnancy" in terms of <Anxiety about miscarriage or stillbirth> and <Anxiety about the health of the fetus>. Pregnancy begins with the implantation of a fertilized egg, and miscarriage at less than 12 weeks is said to be an inevitable phenomenon [18], as it is often attributed to fetal growth failure. In general, pregnant women experience mood instability and sadness with pregnancy [19]. Primiparas, in particular, tend to worry more than they should and overthink situations, even when there is no real cause for concern [20]. Therefore, bearing in mind that pregnancy is a new and unknown experience, it is necessary to support pregnant women by listening to her "Anxiety about normal pregnancy progression" in terms of <Anxiety about miscarriage or stillbirth> and <Anxiety about the health of the fetus>. At the same time, when anxiety during pregnancy manifests as insomnia or sadness, it is said that symptoms of maternity blues are more likely to appear postpartum [21]. It is important not only to recognize anxiety during the first-trimester pregnancy as a

characteristic experience but also to identify and intervene in cases where the anxiety persists, as these may require psychological support.

The results of this survey showed that pregnant women themselves face <Problems in coordinating work with pregnancy>, <Seek to be a good parent>, and <Lack of knowledge about pregnancy>. Additionally, the survey found that pregnant women experienced a “Lack of thinking skills needed to carry out the role of a mother” as an issue. In Japan, the Equal Employment Opportunity Law has been enacted to support the health of working pregnant women during pregnancy and after childbirth. This law stipulates that when a working woman who is pregnant and after childbirth receives guidance from her doctor during a health checkup or other medical examination, her employer must take measures such as adjusting her working hours or reducing her workload (Article 13) [22] to ensure compliance with medical recommendations. If a pregnant woman struggles to follow her physician’s guidance due to difficulties in balancing pregnancy and work, medical providers should actively utilize the maternal health management guidance item contact card [23] to accurately inform employers about the medical instructions she has received. By doing so, they can provide the necessary support to help pregnant women adhere to their doctors’ guidance. The subjects of this study cited “lack of thinking skills necessary to fulfill the role of a mother” as an issue, expressed feelings of <Seek to be a good parent> and <Lack of knowledge about pregnancy>. According to family transition theory, pregnant couples prepare to accept their new identity as parents while gradually developing a sense of parenthood [24]. Therefore, prenatal education should be introduced from the first-trimester pregnancy, with programs designed to involve both the expectant mother and her husband. Additionally, medical professionals should actively intervene to support the transition to motherhood and fatherhood.

4.3. Necessity of Prenatal Education Incorporating Co-Parenting

The results of this study showed that from the first trimester of pregnancy the subjects perceived their husbands’ <Mental Attention>, <Attention to meals>, and <Attention to general housework from the husband’s initiative>, leading to a sense of “Attendance to physical and mental health”.

Previous research has indicated that a husband’s concern for his pregnant wife plays a crucial role in his process of acquiring the role of a father [25]. Therefore, it is necessary to develop a prenatal education program that provides both pregnant women and their husbands with opportunities to share information about the physical and emotional changes that occur from the first trimester. Additionally, such programs should offer concrete guidance on how husbands can effectively support their pregnant wives.

According to the results of this survey, from the first-trimester pregnancy, they engaged in <Sharing information about fetal development with their husbands> while simultaneously <Exploring the image of mothers and fathers>. They also strengthened their “relationship for transitioning from husband and wife to

mother and father” by <Adjustment of the living environment with a view to child rearing> and <Discussions regarding child support>. In Japan, changes in the child-rearing environment, including the shift to nuclear families and the increase in dual-earner households, have heightened the need for couples to collaborate in parenting. This has led to a growing focus on the concept of co-parenting. Rather than merely dividing housework and childcare equally, co-parenting emphasizes how a pregnant woman and her husband fulfill their roles as parents together. Key aspects of this concept include fairness, acceptance, and mutual satisfaction with the process of understanding and dividing responsibilities [26] [27]. Pregnant women <Desire to share feelings about life during pregnancy with their husbands>, <Consider roles and division of housework and childcare with their husbands>, and <Desire to discuss the use of social resources with their husbands > as part of their thoughts on establishing a new family. Thus, promoting co-parenting from pregnancy onward can be effective in improving marital intimacy and reducing parenting stress and postpartum depression in both partners [28] [29] [30].

For the healthy development of children and family health, meta-analyses have confirmed the effectiveness of educational programs for couples to prevent marital deterioration, particularly in Europe and the United States [31]. Interventions that focus on promoting parenting during pregnancy or within 6 months of birth to transition to parenthood have been shown to have positive effects on parenting attitudes, parental stress, child motor development, and child mental health, making interventions that focus on parenting from the first-trimester pregnancy important. The transition to parenthood is a developmental change in the human growth process and is viewed as an aspect of health [32]. During the transition to parenthood, as marital satisfaction declines because of the impact of role conflict [33], support is needed to enable couples to fully fulfill their parental roles from the first-trimester pregnancy. In the future, 1) opportunities should be provided to build on the changes in the roles of father and mother that occur after pregnancy from the male-female relationship, 2) Provide information on fetal development and psychological changes in pregnant women due to pregnancy in order to adapt to the changes in the roles of father and mother, 3) To provide opportunities for discussions that enable pregnant women and their partners to understand each other’s roles empathetically, and to clarify the roles of fathers and mothers, programs need to be developed from the perspective of co-parenting for co-parenting from the first-trimester pregnancy.

5. Limitations of This Study

There are several limitations to this study. First, the small sample size of 15 participants and the limited interview time may have prevented us from gathering enough in-depth narratives from the study subjects. Additionally, as this study was conducted at only four medical facilities in the Tokyo metropolitan area, its findings may not be widely generalizable. In the future, it would be beneficial to

consider expanding recruitment beyond Tokyo and including participants from more diverse demographics such as different socioeconomic statuses and cultural backgrounds. Second, the study focused solely on married primiparas, so the psychological characteristics of unmarried pregnant women were not addressed. Third, no information was collected regarding the participants' medical histories or health statuses during pregnancy. Due to these limitations, the findings of this study should not be directly applied to current nursing practice, and further research is needed to expand on these results.

In the future, it is necessary to obtain narratives from pregnant women attending medical institutions outside the Tokyo metropolitan area to broaden the scope of the research. Furthermore, expanding the study population to include unmarried pregnant women will provide a clearer understanding of the psychological changes experienced during the first-trimester pregnancy.

6. Conclusion

The present study aimed to identify the psychological changes experienced by married primiparas during the first-trimester pregnancy. The results suggest the importance of prenatal education programs that 1) begin during the first-trimester pregnancy and 2) provide couples with opportunities to foster mutual understanding and communication.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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