

Pregnancy, Childbirth, and Childcare during the COVID-19 Pandemic for Parents Raising a 4-Month-Old Child

Sachi Chikazawa¹, Ayako Sasaki¹, Akemi Take¹, Tomotaro Dote¹, Masahide Ohmichi²

¹Faculty of Nursing, Osaka Medical and Pharmaceutical University, Osaka, Japan

²Faculty of Medicine, Osaka Medical and Pharmaceutical University, Osaka, Japan

Email: ayako.sasaki@ompu.ac.jp

How to cite this paper: Chikazawa, S., Sasaki, A., Take, A., Dote, T. and Ohmichi, M. (2023) Pregnancy, Childbirth, and Childcare during the COVID-19 Pandemic for Parents Raising a 4-Month-Old Child. *Health*, 15, 413-435.
<https://doi.org/10.4236/health.2023.155028>

Received: April 5, 2023

Accepted: May 19, 2023

Published: May 22, 2023

Copyright © 2023 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

This study examined the situation of raising a four-month-old baby after pregnancy and childbirth during the COVID-19 pandemic. A fact-finding survey was conducted using an anonymous self-administered questionnaire for mothers and their husbands (hereinafter referred to as fathers) who came to A City, Osaka Prefecture, for health checkups of their four-month-old infants. The questionnaire was distributed to 733 mothers (252 responses). Valid responses were received from 247 participants (33.7%). The questionnaire was distributed to 733 fathers (191 responses). Valid responses were received from 184 participants (25.1%). Most participants belonged to nuclear family households. Sixty percent parents were primiparous. More than 90% parents did not participate in online parenting classes or attend childbirth. In addition, more than 80% mothers did not participate in face-to-face or online maternity classes, postpartum face-to-face visits from grandparents in the hospital, online home visits, telephone conversations, or support from non-relatives. Parents could not obtain information about childcare due to COVID-19. There were restrictions on prenatal checkups, visits, and use of facilities. Most of them resolved these problems via social media platforms, cooperating and communicating with their respective partners and relatives, and devising ways to play with their child. Health of nearly 30% mothers was affected by childcare stress and the pandemic, and they were either depressed or despondent. Approximately 70% experienced positive changes in family relationships and mindsets, such as time spent with family and cooperation received in childcare. During the COVID-19 pandemic, parents coped with various changes and problems they experienced during pregnancy, childbirth, and childcare by devising solutions based on their personal perspectives.

Keywords

COVID-19, Pregnancy, Childbirth, Childcare

1. Introduction

In 2020, the COVID-19 pandemic caused anxiety and fear and drastically changed the world's people's lives. Unprecedented countermeasures were taken to prevent the spread of infection. In Japan, social and economic activities were severely restricted. Many people, especially women and non-regular workers, were forced to take time off from work; furthermore, telework and other forms of work were more widely implemented than ever before. Home became both a "workplace" and a "school" due to such site closures, resulting in more time spent at home impacting family life for both men and women. In this context, the burden of housework and childcare on women increased, leading to a rise in the number of suicides and domestic violence cases impacting women and young people.

The Japanese government responded to the challenges arising from the COVID-19 pandemic by providing financial support, employment assistance, commentary on new counselling services, telephonic and online health guidance, and childcare support services [1] [2].

Furthermore, the Japanese government declared a state of emergency four times between April 2020 and September 2021, and took two priority measures to prevent the spread of the disease from April 2021 to March 2022 [3]. In addition, in April 2021, the government initiated COVID-19 vaccination for the general public, prioritizing older adults, and a call for vaccinating pregnant women was made in August 2021 [4]. Therefore, vaccination has been recommended, and therapeutic drugs are being developed; however, it is not possible to predict when the pandemic will end.

Accordingly, regarding pregnancy and childbirth, there were cases including classes during pregnancy, family presence during childbirth, cancellation or restriction of postnatal visits, abandonment of return to parents' home after childbirth, and cancellation of infant health checkups [5] [6] [7]. Furthermore, it has been reported that approximately 24% women may have experienced postnatal depression [8], and psychological anxiety increases significantly [9] [10] [11].

Moreover, for parents with children, especially those raising infants, the emergency situation caused by the COVID-19 pandemic overlapped with the usual responsibility of childcare.

Mothers accommodated the increased housework and childcare burdens by reducing their time for leisure and living. It is reported that the housework and childcare burdens placed on mothers caused not only time constraints, but also physical and mental stresses [1] [2].

Parents raising infants experience anxiety and stress due to dealing with the new life and the isolation of childcare. Since nursery schools and kindergartens suddenly closed due to the spread of COVID-19, the new circumstances reportedly caused lifestyle changes, such as childcare responsibility, housework, and remote working [1] [2] [12]. Furthermore, school closures and voluntary isolation have continued over an extended period, decreasing opportunities to watch over children and increasing the risk of child abuse.

Thus, the COVID-19 pandemic has changed the situation of pregnancy, childbirth, and childcare in Japan. However, parents' experiences of pregnancy and childbirth, the changes and difficulties they faced in learning from these experiences, and the impact on child-rearing have not been clarified.

Therefore, this study aimed to examine the impact of the COVID-19 pandemic on pregnancy, childbirth, and childcare for mothers and fathers raising 4-month-old children. We believe that by clarifying this, we will be able to pave the way for developing a new form of support that would be useful even after the COVID-19 era and during other disasters in Japan.

2. Method

2.1. Research Design, Survey Period, and Subjects

A fact-finding survey was conducted using an anonymous, self-administered questionnaire. The survey period ranged from June 22 (Tuesday), to October 26, 2021 (Tuesday). We surveyed 733 mothers and their husbands (hereafter, fathers) who visited a facility for health checkups of their four-month-old infants (hereafter, 4-month-old health checkups) in A City, Osaka Prefecture. Responses were collected from 252 mothers, with 247 valid responses (33.7%). Responses were collected from 191 fathers, with 184 valid responses (25.1%).

2.2. Data Collection

With the prior consent of the person in charge of the A City Health Center, a poster describing the research theme and purpose and a request were displayed at the place where the questionnaires were distributed. At the end of the checkup for their four-month-old infant, the investigator distributed explanatory documents and questionnaires to the subjects. Responses were collected by mail using self-addressed envelopes prepared by the investigator for mothers and fathers.

2.3. Questionnaire

The questionnaire was originally created based on the questionnaires of the Kozure Parenting Marketing Institute [13] and Benesse Educational Research Institute [14]. In addition, Shimizu [15] was used as a reference to clarify the impact of COVID-19 on anxiety and stress associated with childcare. With reference to the abovementioned related literature, the items included the characteristics of subjects, conditions of pregnancy, childbirth, childcare, problem-solving techniques and methods, and a supportive spousal relationship.

2.4. Analysis and Evaluation

The analysis was performed using descriptive statistics for each survey item using the statistical software SPSS version.28.0. Inferential statistics for first and second births were conducted regarding experiences during pregnancy, childbirth, and after childbirth, problems, and changes in family relationships and attitudes. In addition, inferential statistics were used to compare stress levels during pregnancy, childbirth, and postpartum childcare. A chi-square test was used, and the significance level was less than 5%. Furthermore, the responses were based on either a four-point Likert scale (e.g., rarely, seldom, sometimes, and often) or a five-point Likert scale (e.g., disagree, slightly disagree, neither, slightly agree, and agree), and we conducted our analysis.

2.5. Ethical Considerations

This study was conducted with the approval of the Ethics Review Board of Osaka Medical and Pharmaceutical University (Study No. 2020-232). Moreover, items explained to the subjects included: research title; a statement that permission had been obtained from the director of the cooperating facility for implementing the research; name of the cooperating facility and name of the principal investigator; purpose and significance of the research; method and period of research; reason for selecting research subjects; coding to identify research subjects; maintaining anonymity when publishing research results in articles and other means; storage and disposal of information; conflict of interest related to research by researchers; and response to consultations from research subjects and their related parties. To minimize the burden on subjects, the question items were carefully selected, and the answers were presented in a multiple-choice format.

3. Results

3.1. Characteristics of Subjects

Table 1 shows the characteristics of the subjects.

The age group for both fathers and mothers was “30 - 34 years.” Furthermore, 183 fathers (99.5%) and 242 mothers (98.8%) lived with their partners. About 172 fathers (93.9%) and 233 mothers (94.6%) lived in nuclear family households. Regarding the number of children, 109 fathers (59.2%) and 138 mothers (55.9%) had one child.

The most common childcare supporters were partners, comprising 173 fathers (95.1%) and 237 mothers (97.1%). Regarding childcare/school attendance, 164 fathers (89.1%) and 220 mothers (90.5%) lived at home. Regarding employment, 166 fathers (90.2%) and 157 mothers (63.6%) were employed regularly. About 25 fathers (13.6%) and 171 mothers (69.2%) were on childcare leave, and 93 fathers (50.5%) and 79 mothers (32.0%) were doing remote work due to COVID-19.

Regarding place of birth, 114 fathers' partners (62.0%) and 151 mothers (61.1%) gave birth at clinics.

Table 1. Characteristics of the subjects.

		Father (n = 184)		Mother (n = 247)	
		Number (%)	Number (%)	Number (%)	Number (%)
Age	20 - 24 years	3	(1.6)	4	(1.6)
	25 - 29 years	32	(17.4)	53	(21.5)
	30 - 34 years	72	(39.1)	103	(41.7)
	35 - 39 years	52	(28.3)	76	(30.8)
	40 - 44 years	21	(11.4)	11	(4.5)
	45 - 49 years	3	(1.6)	0	(0.0)
	60 years old and over	1	(0.5)	0	(0.0)
Family members living together	Partner	183	(99.5)	242	(98.8)
	Mother-in-law	6	(3.3)	4	(1.6)
	Real mother	3	(1.6)	5	(2.0)
	Father-in-law	3	(1.6)	2	(0.8)
	Real father	2	(1.1)	3	(1.2)
	Others	1	(0.5)	5	(2.0)
Primipara/multipara	Primipara	109	(59.2)	138	(55.9)
	Multipara	75	(40.8)	109	(44.1)
Child Care Provider	Partner	173	(95.1)	237	(97.1)
	Mother-in-law	107	(58.8)	80	(32.8)
	Real mother	73	(40.1)	156	(63.9)
	Father-in-law	69	(37.9)	49	(20.1)
	Real father	2	(26.9)	78	(32.0)
	Children	15	(8.2)	17	(7.0)
	Others	10	(5.5)	23	(9.4)
Childcare Situation	Home	164	(89.1)	220	(90.5)
	Nursery school	31	(16.8)	37	(15.2)
	Certified childcare center	17	(9.2)	30	(12.3)
	Elementary school	15	(8.2)	21	(8.6)
	Kindergarten	7	(3.8)	18	(7.4)
	Community-based childcare service	7	(3.8)	6	(2.5)
	Friend/Acquaintance	4	(2.2)	2	(0.8)
	Relatives	2	(1.1)	2	(0.8)
	After-school care for children	0	(0.0)	2	(0.8)
	Others	0	(0.0)	5	(2.1)

Continued

Occupation	Regular staff/employee	166	(90.2)	157	(63.6)
	Self-employed	13	(7.1)	8	(3.2)
	Part-time job	3	(1.6)	12	(4.9)
	Others	2	(1.1)	5	(2.0)
	Househusband/Housewife	0	(0.0)	64	(25.9)
	No answer	0	(0.0)	1	(0.4)
Childcare leave taken	Yes	25	(13.6)	171	(69.2)
	Not taking childcare leave	147	(79.9)	13	(5.3)
	Childcare leave taken	12	(6.5)	60	(24.3)
	Not applicable				
	No answer	0	(0.0)	3	(1.2)
Remote work	Experienced	93	(50.5)	79	(32.0)
	Did not experience	51	(27.7)	68	(27.5)
	Remote work is not	40	(21.7)	97	(39.3)
	No answer	0	(0.0)	3	(1.2)
Place of birth	Clinic	114	(62.0)	151	(61.1)
	Hospital	68	(37.0)	94	(38.1)
	Home	1	(0.5)	1	(0.4)
	Others	1	(0.5)	1	(0.4)

3.2. Experiences of Fathers and Mothers Regarding Pregnancy, Childbirth, and Childcare

Table 2 shows the experiences of both mothers and fathers during pregnancy, childbirth, and child-rearing during the COVID-19 pandemic. **Table 3** shows a comparison of primiparous and multiparous experiences during pregnancy, delivery, and the postpartum period.

The largest percentages that neither father nor mother experienced were as follows: “Participation in face-to-face parental classes” [166 fathers (90.2%), 217 mothers (87.9%)]; “Participation in online parenting classes” [177 fathers (96.2%), 235 mothers (95.1%)]; “Attend online childbirth years [170 fathers (92.4%) and 237 mothers (96.0%)].

The largest percentages of experiences that mothers did not have were as follows: “Participation in face-to-face maternity classes” [205 (83.0%)]; “Participation in online maternity classes” [218 (88.3%)]; “Face-to-face visits with grandparents during postpartum hospitalization” [221 (89.5%)]; “Online home visit” [245 (99.2%)]; and “Postpartum support from people other than relatives” [205 (83.0%)].

Table 2. Percentage of fathers and mothers with no experience of pregnancy, childbirth, or childcare during COVID-19.

	Father (n = 184)		Mother (n = 247)	
	Number	(%)	Number	(%)
Online parenting classes	177	(96.2)	235	(95.1)
Attend the online childbirth	170	(92.4)	237	(96.0)
Face-to-face parenting classes	166	(90.2)	217	(87.9)
Accompanying pregnant woman	123	(66.8)	197	(79.8)
Postpartum face-to-face visits	117	(63.6)	179	(72.5)
Face-to-face birth attendance	107	(58.2)	139	(56.3)
Postpartum online visits	112	(60.9)	136	(55.1)
Online home visits			245	(99.2)
Postpartum face-to-face visits of grandparents			221	(89.5)
Online parenting classes			218	(88.3)
Face-to-face maternity classes			205	(83.0)
Postpartum support from non-relatives			205	(83.0)
Phone visits			199	(80.6)
Use of childcare support centers			186	(75.3)
Return to parent's house to give birth			177	(71.7)
Postpartum online visits of grandparents			176	(71.3)
Online visits of grandparents after discharge			139	(56.3)
Return to parents' home after childbirth			129	(52.2)
Two-week postpartum checkup			49	(19.8)
Postpartum support from relatives			32	(13.0)
Face-to-face home visits			25	(10.1)
Face-to-face visits of grandparents after discharge			21	(8.5)
One-month health checkup for mother and child			2	(0.8)

Table 3. Comparison of experiences during pregnancy, childbirth, and postpartum period between primiparous and multiparous parents (with significant differences).

	Presence of experience	Number of children		χ^2 value	Significant difference	
		Primiparous Number (%)	Multiparous Number (%)			
Father	Face-to-face parenting classes	No	93 (85.3)	73 (97.3)	7.264	**
		Yes	16 (14.7)	2 (2.7)		

Continued

Online parenting classes	No	102	(93.6)	75	(100.0)	5.007	*
	Yes	7	(6.4)	0	(0.0)		
Post-partum face-to-face visits	No	79	(73.1)	38	(52.1)	8.479	**
	Yes	29	(26.9)	35	(47.9)		
Face-to-face maternity classes	No	105	(76.1)	100	(91.7)	10.577	**
	Yes	33	(23.9)	9	(8.3)		
Face-to-face parenting classes	No	113	(81.9)	104	(96.3)	12.102	**
	Yes	25	(18.1)	4	(3.7)		
Online parenting classes	No	128	(92.8)	107	(98.2)	3.858	*
	Yes	10	(7.2)	2	(1.8)		
Postpartum face-to-face meeting	No	109	(79.0)	70	(64.2)	6.655	**
	Yes	29	(21.0)	39	(35.8)		
Return to parents' home after childbirth	No	59	(42.8)	70	(64.8)	11.823	**
	Yes	79	(57.2)	38	(35.2)		
Home visits	No	108	(78.3)	97	(89.0)	4.564	*
	Yes	30	(21.3)	12	(11.0)		
Postpartum support from non-relatives	No	74	(96.1)	91	(97.8)	4.968	*
	Yes	3	(3.9)	2	(2.2)		
Use of childcare support centers	No	97	(70.3)	89	(82.4)	4.824	*
	Yes	41	(29.7)	19	(17.6)		

*: $P < 0.05$, **: $P < 0.01$.

When comparing primiparous and multiparous parents, more primiparous fathers attended “face-to-face parent classes ($\chi^2 = 7.3$, $P < 0.01$)” and “online parenting classes ($\chi^2 = 5.0$, $P < 0.05$)” than multiparous fathers, while more number of multiparous fathers attended “postpartum face-to-face visits ($\chi^2 = 8.5$, $P < 0.01$)” than primiparous fathers. Among mothers, a greater number of primiparous mothers experienced “face-to-face maternity classes ($\chi^2 = 10.6$, $P < 0.01$)”, “Face-to-face maternity classes ($\chi^2 = 10.6$, $P < 0.01$)”, “Online parenting classes ($\chi^2 = 3.9$, $P < 0.05$)”, “Return to parents’ home after childbirth ($\chi^2 = 11.8$, $P < 0.01$)”, “Home visit ($\chi^2 = 4.6$, $P < 0.05$)”, “Postpartum support from non-relatives ($\chi^2 = 5.0$, $P < 0.05$)”, and “Use of child care support center ($\chi^2 = 4.8$, $P < 0.05$)”. Whereas, more multiparous mothers experienced “postpartum face-to-face visits ($\chi^2 = 6.7$, $P < 0.01$)” than primiparous mothers.

3.3. Problems Related to Pregnancy, Childbirth, and Childcare during the COVID-19 Pandemic

Figure 1 shows the degree of problems related to pregnancy, childbirth, and

childcare experienced by fathers and mothers during the COVID-19 pandemic. **Table 4** shows a comparison of problems between primiparous and multiparous parents. **Table 5** shows some of the free comments made by parents regarding their problems, ideas, and solutions.

Table 4. Comparison of experiences of problems related to pregnancy, childbirth, and childcare between primiparous and multiparous parents (items with significant differences).

		Presence of experience	Number of children		χ^2 value	Significant difference
			Primiparous	Multiparous		
			Number (%)			
Father	Unable to obtain information on childcare	No	73 (67.0)	68 (91.9)	15.478	**
		Yes	36 (33.0)	6 (8.1)		
Mother	Unable to obtain information on childcare	No	70 (50.7)	89 (81.7)	25.398	**
		Yes	38 (49.3)	20 (18.3)		

** : P < 0.01.

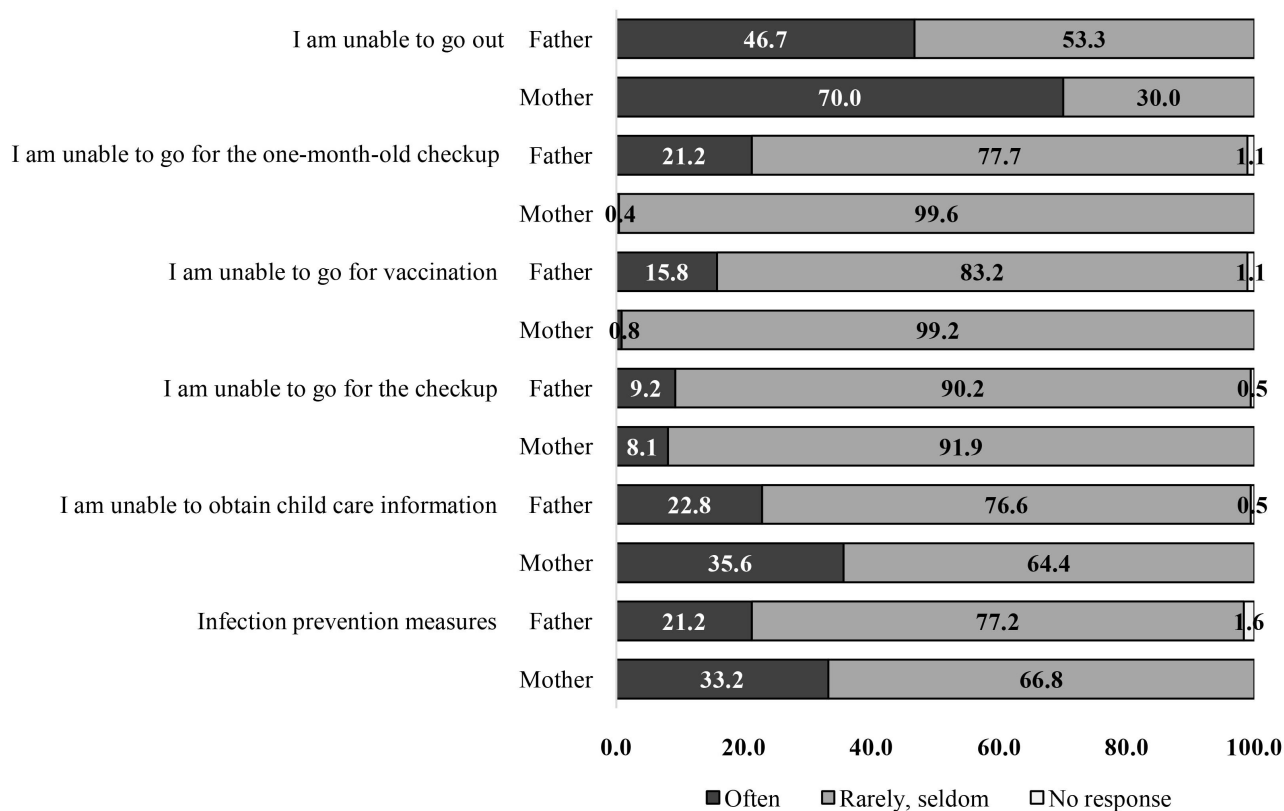


Figure 1. Ratio of problems related to pregnancy, childbirth, and childcare by parents during the COVID-19 pandemic.

Table 5. Problems related to pregnancy, childbirth, and childcare: ideas and solutions (partial excerpt).

	Problems	Ideas and solutions
Pregnancy	<p><u>Unable to attend prenatal health checkup</u></p> <ul style="list-style-type: none"> I was unable to attend the prenatal check-up, so I could not confirm the baby's growth and development (at the hospital). <p><u>Restrictions on visits during hospitalization</u></p> <ul style="list-style-type: none"> She was admitted to the hospital due to threatened preterm labor. We could visit her because of COVID-19 restrictions. <p><u>Unable to attend classes</u></p> <ul style="list-style-type: none"> I could not participate in the parenting class 	<p><u>Information sharing from wife</u></p> <ul style="list-style-type: none"> Listen to them <p><u>Use social media</u></p> <ul style="list-style-type: none"> Frequent video calls or waving from outside the hospital. <p><u>Use internet</u></p> <ul style="list-style-type: none"> Research and read childcare books and find information on the Internet
	<p><u>Unable to attend the prenatal health checkup</u></p> <ul style="list-style-type: none"> She felt lonely at the checkup because her husband could not accompany her. <p><u>Infection/risk of infection</u></p> <ul style="list-style-type: none"> She was worried about getting infected. <p><u>Unable to go out</u></p> <ul style="list-style-type: none"> Unable to go out freely 	<p><u>Use of videos and photos</u></p> <ul style="list-style-type: none"> The maternity hospital proactively provided ultrasound videos and photos at the checkup, so she took them home and together they spent time reflecting on these images. <p><u>Infection control measures</u></p> <ul style="list-style-type: none"> Basic infection control measures (masks, hand hygiene, gargling, avoiding crowds) were thoroughly implemented. <p><u>Mood regulation</u></p> <ul style="list-style-type: none"> Ensure she enjoys her time at home.
Childbirth	<p><u>Restriction on attending childbirth</u></p> <ul style="list-style-type: none"> He wanted to be in the delivery room with his wife. <p><u>Restriction on visits</u></p> <ul style="list-style-type: none"> He could not see his wife. <p><u>Dealing with older children</u></p> <ul style="list-style-type: none"> Mental health care of older children 	<p><u>Use of social media</u></p> <ul style="list-style-type: none"> He witnessed the birth of his child via an online video call. <p><u>Ideas for packing</u></p> <ul style="list-style-type: none"> He packed a week's worth so that he would not have to worry during his wife's hospital stay. <p><u>Ideas for playing</u></p> <ul style="list-style-type: none"> To relieve the child's loneliness of not being able to see his mother while she was in the hospital, he took his child to play and spend a lot of time outside the nursery school.
	<p><u>Restrictions on attending childbirth</u></p> <ul style="list-style-type: none"> Unable to <u>attend</u> childbirth <p><u>Restrictions on visits</u></p> <ul style="list-style-type: none"> Unable to meet her husband and child during hospitalization <p><u>Wearing mask during delivery</u></p> <ul style="list-style-type: none"> She had to wear a mask even during labor and delivery, which was painful. 	<p><u>Use of social media</u></p> <ul style="list-style-type: none"> Before, during, and after childbirth, she carried a mobile phone and reported her condition online. <p><u>Cooperation of husband</u></p> <ul style="list-style-type: none"> She exchanged letters with her husband, saw his face a little when he brought necessary items for childbirth, and talked a lot on the phone each time.
Childcare	<p><u>Unable to go out</u></p> <ul style="list-style-type: none"> Unable to go out <p><u>Infection/risk of infection</u></p> <ul style="list-style-type: none"> Anxious about COVID-19 infection <p><u>Wife's physical condition and stress</u></p> <ul style="list-style-type: none"> Regulating wife's mood 	<p><u>Ideas for playing</u></p> <ul style="list-style-type: none"> Play more in the part <p><u>Cooperating with his wife</u></p> <ul style="list-style-type: none"> When his wife was feeling well on his off days, he took her out for a walk (staying at home with his child) <p><u>Infection measures</u></p> <ul style="list-style-type: none"> Hand hygiene after reaching home

Continued

Mother	<p><u>Unable to interact with others</u></p> <ul style="list-style-type: none"> • He has not interacted with people who had children during the same period; therefore, unable to exchange information. 	<p><u>Use of social media</u></p> <ul style="list-style-type: none"> • She frequently used a smartphone and LINE
	<p><u>Restrictions on facility use</u></p> <ul style="list-style-type: none"> • He heard that the childcare center and other facilities have a reservation system, so he could not stop by easily. 	<p><u>Ideas for playing</u></p> <ul style="list-style-type: none"> • She took her child to the park. She bought a lot of toys so that her child could play with them at home.
	<p><u>Unable to go out</u></p> <ul style="list-style-type: none"> • I cannot go for shopping or go out. 	<p><u>Use of internet</u></p> <ul style="list-style-type: none"> • She uses online shopping and co-op.

In the order of frequency, items for which fathers answered “sometimes or often” are as follows: “unable to go out [86 people (46.7%)],” “unable to obtain childcare information [42 people (22.8%)],” and “unable to go for the one-month-old checkup” and “infection prevention measures [39 people (21.2%).” In order of frequency, items for which fathers answered “sometimes or often” are as follows: “unable to go out [172 people (70.0%)],” “unable to obtain childcare information [88 people (35.6%)],” and “infection prevention measures [82 people (33.2%).”

When comparing the problems of primiparous and multiparous parents, we found that primiparous fathers ($\chi^2 = 15.5$, $P < 0.01$) and mothers ($\chi^2 = 25.4$, $P < 0.01$) had significantly less childcare information. There were no significant differences between fathers and mothers when comparing experiences during pregnancy, childbirth, and postpartum.

In the free comments on problems, ideas, and solutions, respondents had problems such as “unable to attend pregnancy health checkups,” “restrictions on visits during hospitalization,” and “unable to participate in classes,” and dealt with it by “sharing information from wife,” “using social media,” and by “using the internet.” Mothers have problems such as “not being able to attend prenatal health checkups,” “infection/risk of infection,” “unable to go out,” and deal with these issues by using videos and photos, taking measures against infection, and regulating mood. Regarding childbirth, fathers have problems such as “restrictions on attending the childbirth,” “restrictions on visits,” and “handling older children,” and dealt with these by “using social media,” “creative ways to pack,” and “creative ways to play.” Mothers had problems such as “restrictions on attending the childbirth” “visiting restrictions,” and going through “childbirth while wearing a mask.” Mothers responded that they dealt with these “using social media,” and “cooperating with husbands.” Regarding childcare, fathers had problems such as were “unable to go out,” fear of “infection/infection risk,” “physical condition/stress of wife,” and dealt with these through “creative ways to play,” “cooperating with wife,” and “infection measures.” Mothers admitted that they had problems such as “being unable to interact,” “restricted use of facilities,” and “being unable to go out,” and admitted dealing with these by “using social media,” adopting “creative ways to play,” and by “using the Internet.”

3.4. Health Conditions and Childcare Stress Experienced by Parents during COVID-19

Table 6 shows parents' health awareness and their emotional state during the COVID-19 pandemic. **Table 7** shows concerns and problems of parents during the COVID-19 pandemic. **Table 8** presents a comparison of childcare stress during pregnancy, childbirth, and after childbirth. **Table 9** shows the circumstances surrounding the stress experienced by mothers about the support from fathers during COVID-19 pandemic.

Eight fathers (4.3%) and nine mothers (3.6%) said that they were "unhealthy" or "slightly unhealthy." Regarding mental and physical disorders, 28 fathers (15.2%) and 79 mothers (32.0%) responded that they felt either depressed or despondent. Twenty-six (14.1%) fathers and 40 (16.2%) mothers said that they were often uninterested in things and could not enjoy themselves. There were no significant differences between mothers and fathers in the comparison of primiparous and multiparous parents and experiences during pregnancy, childbirth, and postpartum in terms of their own health and mental and physical disorders.

In order of frequency, regarding items relating to childcare stress, fathers answered "agree" and "slightly agree," and the responses are as follows: "I feel physically tired with childcare [51 people (27.7%)]," "I cannot do anything else because of childcare [50 people (27.2%)]," and "I am sleep deprived because of childcare [48 people (26.1%).]" In order of frequency, regarding items relating to childcare stress, the surveyed mothers answered "agree" and "slightly agree," and their responses are as follows: "I feel physically tired with childcare [163 people (66.0%)]," "I cannot do anything else because of childcare [137 people (55.5%)]," and "I do not have much time to rest after childcare [136 people (55.1%).]" There was no significant difference between mothers and fathers when primiparous and multiparous parents were compared in terms of childcare stress. The comparison of childcare stress during pregnancy, childbirth, and postpartum

Table 6. Awareness of the health and feelings of parents (fathers and mothers) during the COVID-19 crisis.

		Fathers		Mothers	
		Number (%)			
Health status	Unhealthy	8	(4.3)	9	(3.6)
	Slightly unhealthy				
	Slightly healthy	176	(95.7)	238	(96.4)
	Healthy				
Feeling depressed and despondent	Yes	28	(15.2)	79	(32.0)
	No	155	(84.2)	167	(67.6)
	No response	1	(0.5)	1	(0.4)
Often felt that they had no interest in things and could not enjoy them fully.	Yes	26	(14.1)	40	(16.2)
	No	157	(85.3)	206	(83.4)
	No response	1	(0.5)	1	(0.4)

Table 7. Concerns and problems of parents (fathers and mothers) during the COVID-19 pandemic.

		Disagree, slightly disagree		Neither		Slightly agree, agree	
		Number	(%)	Number	(%)	Number	(%)
I have been experiencing sleep deprivation for days	Father	122	(66.3)	14	(7.6)	48	(26.1)
	Mother	89	(36.0)	17	(6.9)	141	(57.1)
I am concerned about the child lagging behind other children	Father	167	(90.8)	10	(5.4)	7	(3.8)
	Mother	196	(79.4)	23	(9.3)	28	(11.3)
I am physically exhausted	Father	110	(59.8)	22	(12.0)	51	(27.7)
	Mother	49	(19.8)	34	(13.8)	163	(66.0)
I am concerned about the child's personality	Father	151	(82.1)	17	(9.2)	16	(8.7)
	Mother	209	(84.6)	23	(9.3)	15	(6.1)
I have little time to rest	Father	118	(64.1)	27	(14.7)	37	(20.1)
	Mother	64	(25.9)	46	(18.6)	136	(55.1)
I am concerned about my child's intelligence	Father	164	(89.1)	10	(5.4)	10	(5.4)
	Mother	217	(87.9)	20	(8.1)	10	(4.0)
I am unable to do other things	Father	108	(58.7)	26	(14.1)	50	(27.2)
	Mother	63	(25.5)	47	(19.0)	137	(55.5)
I am concerned about my child's facial features and appearance	Father	161	(87.5)	7	(3.8)	16	(8.7)
	Mother	225	(91.1)	6	(2.4)	16	(6.5)
I have no freedom	Father	140	(76.1)	20	(10.9)	23	(12.5)
	Mother	153	(61.9)	47	(19.0)	47	(19.0)
I do not know how to connect with my child	Father	157	(85.3)	13	(7.1)	13	(7.1)
	Mother	214	(86.6)	20	(8.1)	12	(4.9)
I have to wake up at night	Father	159	(86.4)	11	(6.0)	14	(7.6)
	Mother	151	(61.1)	42	(17.0)	54	(21.9)
I am vaguely anxious	Father	139	(75.5)	23	(12.5)	22	(12.0)
	Mother	164	(66.4)	27	(10.9)	56	(22.7)

revealed a significant difference in “I am concerned about my child's personality ($\chi^2 = 5.2$, $P < 0.01$),” and “I do not know how to interact with my child ($\chi^2 = 4.2$, $P < 0.01$).” Furthermore, these feelings were more common among fathers who experienced face-to-face attendance at childbirth than among those who did not.

Table 8. Comparison of childcare stress during pregnancy, childbirth, and postpartum period (significant differences).

		Experience		χ^2 value	Significant difference	
		No	Yes			
		Face-to-face attendance at childbirth				
Father	I am concerned about my child's personality	Disagree ^{#1}	102 (95.3)	66 (85.7)	5.212	*
	Agree ^{#2}	5 (4.7)	11 (14.3)			
	I do not know how to connect with my child	Disagree ^{#1}	102 (96.2)	4 (3.8)	4.234	*
	Agree ^{#2}	68 (88.3)	9 (11.7)			

*: $P < 0.05$. ^{#1}Disagree: Disagree, slightly disagree, neither. ^{#2}Agree: Slightly agree or agree.

Table 9. Stress experienced by the wife over her husband's support during the COVID-19 pandemic.

		Number	(%)
He thinks about his life more than our child	Disagree, slightly disagree	196	(79.4)
	Neither	24	(9.7)
	Slightly agree, agree	27	(10.9)
He does not understand the hardships of childcare	Disagree, slightly disagree	161	(65.2)
	Neither	35	(14.2)
	Slightly agree, agree	51	(20.6)
He does not help in childcare	Disagree, slightly disagree	168	(68.0)
	Neither	34	(13.8)
	Slightly agree, agree	45	(18.2)
I am annoyed that he is not fully committed to childcare	Disagree, slightly disagree	194	(78.5)
	Neither	25	(10.1)
	Slightly agree, agree	27	(10.9)
	No response	1	(0.4)

Regarding the circumstances surrounding the stress experienced by mothers over the support of fathers during the COVID-19 pandemic, items for which mothers answered "agree" and "slightly agree" are as follows: "He thinks about his life more than our child [51 people (20.6%)]," "He does not understand the hardships of childcare [45 people (18.2%)]," "He does not help in childcare [27 people (10.9%)]," and "I am annoyed that he is not fully committed to childcare [27 people (10.9%)]." There were no significant differences in the comparison of primiparous and multiparous parents and experiences during pregnancy, childbirth, and after childbirth.

3.5. Changes in Family Relationships and Attitudes during COVID-19

Table 10 shows the feelings of parents about family relationships during the COVID-19 pandemic. **Table 11** shows a comparison between primiparous and multiparous parents in terms of their feelings about family relationships.

Table 10. Feelings about family relationships during the COVID-19 pandemic.

		Father (n = 184) Mother (n = 247)			
		Number (%)			
Increased time spent with family	Rarely, seldom	45	(24.5)	57	(23.1)
	Sometimes, Often	139	(75.5)	190	(76.9)
Increased time spent talking with family members	Rarely, seldom	60	(32.6)	84	(34.0)
	Sometimes, Often	124	(67.4)	163	(66.0)
Deeper family relationships	Rarely, seldom	57	(31.0)	80	(32.4)
	Sometimes, Often	127	(69.0)	167	(67.6)
Helping with housework	Rarely, seldom	45	(24.5)	83	(33.6)
	Sometimes, Often	138	(75.0)	164	(66.4)
	No response	1	(0.5)	0	(0.0)
Helping with childcare	Rarely, seldom	35	(19.0)	57	(23.1)
	Sometimes, Often	147	(79.9)	190	(76.9)
	Rarely, seldom	2	(1.1)	0	(0.0)
Mutually thinking about COVID-19 measures	Sometimes, Often	62	(33.7)	79	(32.0)
	Rarely, seldom	121	(65.8)	168	(68.0)
	No response	1	(0.5)	0	(0.0)

Table 11. Comparing primiparous and multiparous parents regarding family relationships and feelings during the COVID-19 pandemic (items with significant differences).

	Presence of experience	Number of children				χ^2 value	Significant difference
		Primiparous		Multiparous			
		Number (%)					
Increased time spent talking with family members	No	29	(26.6)	31	(41.3)	4.385	*
	Yes	80	(73.4)	44	(58.7)		
Father Deeper family relationships	No	24	(22.0)	85	(78.0)	10.040	**
	Yes	33	(44.0)	42	(56.0)		
Helping with childcare	No	15	(13.9)	20	(27.0)	4.880	*
	Yes	93	(86.1)	54	(73.0)		

*: $P < 0.05$, **: $P < 0.01$.

Regarding the circumstances about parents' feelings on family relationships during the COVID-19 pandemic, items for which respondents answered "sometimes" and "often" are as follows: "I spent more time with my family [139 fathers (75.5%), 190 mothers (76.9%)]," "I have more time to talk with my family [124 fathers (67.4%), 163 mothers (66.0%)]," "I connected with my family at a deeper level [127 fathers (69.0%), 167 mothers (67.6%)]," "We started to share housework [138 fathers (75.0%), 164 mothers (66.4%)]," "We started to help each other in childcare [147 fathers (79.9%), 190 mothers (76.9%)]," and "I started to think about measures to deal with COVID-19 [121 fathers (65.8%), 168 mothers (68.0%)."

Significant differences were noted in the comparison of feelings of primiparous and multiparous parents about family relationships, "I spent more time with my family ($\chi^2 = 4.4$, $P < 0.01$)," "I connected with my family at a deeper level ($\chi^2 = 10.0$, $P < 0.05$)," and "We started to help each other in childcare ($\chi^2 = 4.9$, $P < 0.01$)," and more primiparous fathers experienced these items than multiparous fathers. No significant difference was observed between the primiparous and multiparous mothers. In addition, there were no significant differences between fathers and mothers when comparing experiences during pregnancy, childbirth, and postpartum.

4. Discussion

4.1. Characteristics of Subjects

According to the 2021 Comprehensive Survey of Living Conditions [16], 82.6% households with children were nuclear family households. In this study, 93.9% fathers and 94.6% mothers were in nuclear family households, which is higher than the national ratio. Furthermore, among childcare supporters, most parents (*i.e.*, fathers and mothers) were mutual partners and stayed at home for childcare and school attendance. This indicates that parents cooperate in raising their children.

4.2. Experiences of Fathers and Mothers Regarding Pregnancy, Childbirth, and Childcare

More than half of the parents did not experience any of the items during pregnancy, childbirth, or postpartum. In particular, 90.2% of fathers and 87.9% mothers did not participate in face-to-face parenting classes, 96.2% fathers and 95.1% mothers did not participate in online parenting classes, 83.0% did not attend face-to-face maternity classes, and 88.3% did not attend online maternity classes. In a 2019 report, 61% men and 74% women responded that they had participated in or attended a course during pregnancy and delivery of their first child [17]. Many of the study participants were either fathers or mothers who did not participate in face-to-face or online sessions. In addition, more primiparous fathers participated in face-to-face and online parenting classes than multiparous fathers, and more primiparous mothers experienced face-to-face ma-

ternity classes and face-to-face and online parenting classes than multiparous mothers. Parenting and maternity classes are opportunities that enable parents to acquire knowledge and skills related to pregnancy, childbirth, and childcare. They also promote exchanges between fathers and mothers and communication with partners. We believe that fathers and mothers are becoming more anxious about pregnancy, childbirth, and childcare due to the lack of such opportunities. In fact, the Ministry of Health, Labor, and Welfare proposed online health guidance to supplement classes for parents and mothers as it became difficult to hold regular classes due to the COVID-19 pandemic, and we believe that parents will continue to use online guidance in the future. In addition, it has been reported that a high proportion of those who did not participate in health guidance requested videos for items related to children [18]. In Japan, online health guidance was introduced with the outbreak of the COVID-19 pandemic; in the future, it is necessary to verify the educational effects and consider the content and method.

More than 80% mothers experienced two-week postpartum checkups, one-month checkups for mothers and infants, face-to-face home visits, postpartum support from relatives, and face-to-face visits with grandparents after discharge from the hospital. Whereas, 71.7% women had never given birth at home. Additionally, more than 80% had not experienced face-to-face visits with their grandparents during postpartum hospitalization, online home visits, telephone visits, or postpartum support from other relatives. Furthermore, 75.3% had never used a child-rearing support center. In addition, primiparous mothers experienced return to parents' home after childbirth, home visits, postpartum support from non-relatives, and the use of childcare support centers. The proportion of nuclear families in this study was higher than the national proportion for both fathers and mothers, and the number of childcare supporters who had partners was the highest for both fathers and mothers. Therefore, we believe that mothers and fathers are involved in raising children alone without sufficient postnatal support, and that they raise children even while facing difficulties due to a lack of knowledge, support, and peers.

Furthermore, 58.2% fathers and 56.3% mothers had never experienced face-to-face childbirth. In addition, 63.6% fathers and 72.5% mothers did not have face-to-face visits after childbirth, and 60.9% fathers and 79.8% mothers had no experience of online visits after childbirth. More multiparous fathers and mothers had face-to-face visits after giving birth. In Japan, due to the risk of COVID-19 infection, some facilities have restricted attendance at childbirth and visits during postpartum hospitalization, even if the mother tests negative for COVID-19. Attending childbirth is a form of support for parents to take the initiative in childbirth. The declining birthrate, increasing number of nuclear families, and child abuse are becoming increasingly serious issues in Japan. The outcome of witnessing childbirth includes deepening the father's affection for the child and wife, husband's participation in childcare, and increase in the wife's satisfaction

with childbirth, which stabilizes mental conditions such as postpartum depression [19] [20] [21] [22]. In addition, “Healthy Parents and Children 21,” which promotes improvement in the health levels of mothers and children, also recommends attending childbirth with the goal of increasing mothers’ satisfaction with childbirth. We believe that attending childbirth, which has various effects, has been restricted due to COVID-19, affecting mothers’ satisfaction with childbirth, mental conditions such as postpartum depression, acquisition of father’s role and responsibilities, and the formation of family relationships.

Attending online childbirth is a form of support during situations in which face-to-face childbirth is restricted. Attending online childbirth uses a communication system that helps the mother receive timely emotional support from her husband and family during labor. It has been reported that experiencing a sense of connection through the screen of the device provides confidence to the mother, and it is possible to obtain the same outcome through face-to-face attendance of online childbirth [23] [24] [25] [26]. However, in this study, 92.4% fathers and 96.0% mothers had never attended online childbirth. This may be because during this time, healthcare workers were occupied with responding to the rapid spread of COVID-19, which has impeded the implementation of online childbirth. During childbirth and childcare, it is necessary to have someone to share the experience, and during the COVID-19 pandemic, the presence of a spouse or closest partner is even more important than during normal times. For this reason, the use of online services may continue in the future to supplement childbirth and visit restrictions; as such, it is necessary to consider effective support in the future.

4.3. Problems Related to Pregnancy, Childbirth, and Childcare

Among fathers, concerns related to pregnancy, childbirth, and childcare, which occurred “sometimes or often” were “unable to go out (46.7%),” “unable to obtain childcare information (22.8%),” “unable to go for the one-month-old checkup (21.2%),” and “infection prevention measures (21.2%).” Mothers raised concerns such as “unable to go out (70.1%),” “unable to obtain childcare information (35.6%),” and “infection prevention measures (33.2%).” When comparing problems encountered by primiparous and multiparous parents, more primiparous parents were “unable to obtain childcare information” than multiparous parents. Furthermore, the free comments section clarified that there were restrictions on prenatal checkups, visits, going out, and using facilities, making it difficult for parents. In response to these problems, parents used social media, cooperated and communicated with their partners and relatives, and devised creative ways to play with their children.

Generally, support from family members and close relatives and relationships between partners provide emotional support for both mothers and fathers. However, parents were unable to receive this support because of travel restrictions that prevented them from interacting with others. Furthermore, it has been re-

ported that pregnant women and mothers consulted public health nurses about their concerns regarding infection, difficulties in obtaining support from family members and close relatives, inability of mothers to support each other, difficulty in obtaining support from maternity hospitals, desire for flexible support for projects implemented by municipalities, financial and social problems, and problems arising from measures to prevent infectious diseases [27]. In a literature review on childcare anxiety and stress experienced by fathers and the need for providing childcare support for fathers, compared to mothers, fathers tend to be isolated from social resources for childcare, lack understanding and awareness about the growth and development of their children, and reportedly experience stress and anxiety about childcare [28]. Primiparous mothers and fathers obtain information about pregnancy, childbirth, and childcare through relationships and support from others. Primiparous parents could not obtain childcare information. On the other hand, fathers and mothers dealt with the problems caused by COVID-19 by using social media and cooperating with their respective partners. The use of social media has rapidly progressed worldwide owing to the COVID-19 pandemic. Even though going out was restricted, it was necessary to enable fathers and mothers to interact with each other using social media and other online platforms and to consult medical professionals.

4.4. Health Awareness and Feelings of Fathers and Mothers during COVID-19

When asked about their health status, some fathers and mothers answered that they were “unhealthy” or “slightly healthy.” Regarding physical and mental disorders, 15.2% fathers and 32.0% mothers often felt “depressed and despondent,” while 14.1% fathers and 16.2% mothers often felt that they “had no interest in things and that they could not fully enjoy things.” Furthermore, in order of frequency, fathers’ responses to childcare stress were either “agree” or “slightly agree”: “I feel physically tired with childcare,” “I cannot do anything else because of childcare,” and “I am sleep deprived because of childcare.” In order of frequency, the items on childcare stress for which fathers answered “agree” or “slightly agree” are as follows: “I feel physically tired with childcare,” “I cannot do anything else because of childcare,” and “I do not have much time to rest after childcare.” Items for which mothers “agreed” or “slightly agreed” on the support of fathers are as follows: “He thinks about his life more than our child,” “He does not understand the hardships of childcare,” “My husband does not help in childcare,” and “I am annoyed that he is not fully committed to childcare.”

A literature review by Maeda *et al.* [29]. on the causes of childcare stress among mothers with infants clarified that childcare stress is associated with changes in lifestyles and awareness due to having children, and that the living environment is also a stress factor. In a living environment where childcare support is not available to others, we believe that when parents raise children without support, physical fatigue accumulates, making it difficult for them to

rest and eventually leading to childcare stress. In particular, a larger number of mothers complained of childcare stress, indicating that they were burdened with childcare and housework. Furthermore, 18.9% of mothers with a 1-year-old child said that they were dissatisfied with their “husband’s participation in childcare,” revealing that the difficulty of childcare reduces for mothers when their satisfaction with their “husband’s participation in childcare” increases [30]. Mothers and fathers were required to cooperate in child-rearing, but among the study participants, 90.2% fathers were regular employees, and only 13.6% fathers took childcare leave, indicating that fathers often find it difficult to participate in childcare when considering the child’s life rhythm. We believe that opportunities to participate in childcare are increasing, as fathers spend more time at home because of the COVID-19 pandemic. Japan amended the Child Care and Family Care Leave Act in 2021 to increase the percentage of fathers taking childcare leave to 30% by 2025. As such, this act will be implemented in stages from 2022 onward [31]. Further systems must be developed so that fathers can balance work and childcare, thus allowing fathers and mothers to raise their children together.

4.5. Experience of Family Relationships during COVID-19

Feelings expressed by parents either “sometimes” or “often” about family relationships during COVID-19 are as follows: “I spent more time with my family (75.5% fathers and 76.9% mothers),” “I have more time to talk with my family (67.4% fathers and 66.0% mothers),” “I connected with my family at a deeper level (69.0% fathers and 67.6% mothers),” “We started to share housework (75.0% fathers and 66.4% mothers),” “We started to help each other in childcare (79.9% fathers and 76.9% mothers),” and “I started to think about measures to deal with COVID-19 (65.8% of fathers and 68.0% of mothers).” Furthermore, when comparing the feelings of primiparous and multiparous parents on family relations, for which significant differences were noted, more primiparous fathers spent “increased time with family,” “deeper relationship with family,” and “cooperated in childcare” than multiparous fathers.

Furthermore, 50.5% fathers and 32.0% mothers were working remotely from home, and as a result of the ongoing restrictions on going out and spending time at home, family relationships became deeper than before the spread of COVID-19. The increased time spent by fathers, mothers, and children at home is not only stressful but also increases opportunities to receive affection. We believe that the changes caused by COVID-19 are not only negative; each change and problem becomes an opportunity for parents to find ways to turn them into positive experiences. We believe that effective family functioning affects the relationships between husbands and wives, parents and children, and the entire family.

5. Research Limitations and Future Research

The study limitation is that it was conducted in only one region of Japan. Future

studies must include a comparison with other countries and areas where the COVID-19 infection is spreading and in areas where the infection is not spreading, and the establishment of support methods that lead to intervention research.

6. Conclusions

This study attempts to examine the actual effects of pregnancy and childbirth experiences during the COVID-19 pandemic on mothers and fathers raising four-month-old children.

The study results revealed that about 60% had not experienced face-to-face childbirth. In addition, more than 80% mothers had not experienced face-to-face or online maternity classes, face-to-face hospital visits with grandparents after childbirth, online home visits, telephone visits, or support from non-relatives after childbirth.

Due to the COVID-19 pandemic, there were restrictions on prenatal check-ups, visits, going out, and using facilities, all of which caused problems for parents. To cope with these restrictions, parents used social media, cooperated and communicated with their respective partners and relatives, and devised creative ways to play with their children.

Furthermore, 30% mothers were depressed or despondent due to their health condition and childcare stress under the influence of COVID-19. Approximately 70% experienced positive changes in family relationships and mindsets, such as time spent with family and cooperation in childcare. Therefore, we conclude that parents experienced various changes and problems during pregnancy, childbirth, and childcare during COVID-19. Conversely, we also found that they cope with changes and problems by devising creative ways according to their own lives.

Acknowledgements

We would like to express our sincere gratitude to all mothers and fathers who willingly cooperated with the survey despite their busy schedules. This research was supported by a JSPS Grant-in-Aid for Scientific Research JP21K10899.

Conflicts of Interest

There are no conflicts of interest in this study.

References

- [1] Ministry of Health, Labour and Welfare (2021) 2021 Edition: Annual Health, Labour and Welfare Report—COVID-19 Pandemic and Social Security System. *Body of the Report*, 2, 62-75. <https://www.mhlw.go.jp/content/001011736.pdf>
- [2] Ministry of Health, Labour and Welfare (2021) 2021 Edition: Annual Health, Labour and Welfare Report—COVID-19 Pandemic and Social Security System—Summary, 1-17.
- [3] Hirahara, F. (2020) Obstetric Infection Prevention Guide: Guidelines for Preparing for Novel Coronavirus Infection. In: Hashii, K. and Sekizawa, A., Eds., Japan Association of Obstetricians and Gynecologists, Japan Council for Implementation of

- Maternal Emergency Life-Saving System, Medica Publishing, Osaka, 10-12.
- [4] Ministry of Health, Labor and Welfare (2021) Inoculation of the COVID-19 Vaccine for Pregnant Women and Raising Awareness of COVID-19 Countermeasures. <https://www.mhlw.go.jp/content/000822336.pdf>
 - [5] Fathering Japan (2020) Pregnancy and Childbirth Survey Results before and after the COVID-19 Pandemic (Completed Version). https://drive.google.com/file/d/1rKhNE779s5MCfyOwZty-BorQF0f8J-R_/view
 - [6] Komatsu, H. (2021) [Medical Measures for Obstetrics and Gynecology against COVID-19] Global Obstetrics and Gynecology Practice under the COVID-19 Epidemic and Emergency Questionnaire Survey of Obstetrics and Gynecology Institutions in Japan. *Obstetrical and Gynecological Practice*, **70**, 209-215.
 - [7] Fukuzawa, R. (2021) [Support for Pregnant Women and Couples Who Are in Trouble Because of COVID-19] Support for “Attending the Childbirth” in the COVID-19 and the Effects, Current Situation, Issues, and Responses of “Attendance” in Other Countries. *Rinshō Josan Care: Skill No Kyōka*, **13**, 27-34.
 - [8] Matsushima, M. (2021) [Preventing Postpartum Depression] Postnatal Depression Risks Revealed from Surveys: Surveys on the Mental Health Status of Pregnant and Postpartum Mothers. *The Japanese Journal for Midwives*, **75**, 242-249.
 - [9] Takubo, Y., Tsujino, N., Aikawa, Y., Fukiya, K., Iwai, M., Uchino, T., Ito, M., Akiba, Y., Mizuno, M. and Nemoto, T. (2021) Psychological Impacts of the COVID-19 Pandemic on One-Month Postpartum Mothers in a Metropolitan Area of Japan. *BMC Pregnancy and Childbirth*, **21**, Article No. 845. <https://doi.org/10.1186/s12884-021-04331-1>
 - [10] Hessami, K., Romanelli, C., Chiurazzi, M. and Cozzolino, M. (2020) COVID-19 Pandemic and Maternal Mental Health: A Systematic Review and Meta-Analysis. *The Journal of Maternal-Fetal & Neonatal Medicine*, **35**, 4014-4021. <https://doi.org/10.1080/14767058.2020.1843155>
 - [11] Manaka, M., Sasano, N., Chikazawa, S. and Sasaki, A. (2023) Review of Factors Associated with Depression among Pregnant Women during the COVID-19 Pandemic. *Health*, **15**, 161-176. <https://doi.org/10.4236/health.2023.152013>
 - [12] Cozre Parenting Marketing Institute (2020) General Survey on COVID-19. Changes in Consumption Behavior of Pregnant and Child-Rearing Moms. <https://cozre.co.jp/blog/4333/>
 - [13] Cozre Parenting Marketing Institute (2020) Survey on COVID-19. Survey on Childbirth in COVID-19 Crisis—Thinking about How Mothers Deal With COVID-19. <https://cozre.co.jp/blog/5291/>
 - [14] Bennese Educational Research and Development Institute (2020) Study on the Impact of COVID-19 on the Lives of Infants and Elementary School Students Conducted in May 2020. <https://berd.benese.jp/jisedai/research/detail1.php?id=5520>
 - [15] Yoshiko, S. (2017) Mothers’ Psychological Health Check Sheet Handbook. Parade Co., Ltd., Osaka, 9-10.
 - [16] Ministry of Health, Labor and Welfare (2022) Overview of the 2021 Basic Survey of Living Conditions. <https://www.mhlw.go.jp/toukei/saikin/hw/k-tyosa/k-tyosa21/dl/12.pdf>
 - [17] Fathering Japan (2020) Prenatal Courses: Participation Status (Gender): Results of a National Survey on Prenatal Lectures for Mothers and Fathers with Infants under the Age of 2. 1-41.
 - [18] Yamaguchi, K. and Tomioka, M. (2022) Effects of the First and Second Waves of COVID-19 on Women from Pregnancy to One Year after Childbirth. *Himeji Dai-*

gaku Kangogakubu Kiyo, **13**, 1-9.

- [19] Tajima, A. and Kyoko, W. (1995) Mental Effects of Childbirth Attended by Husband. *Japanese Journal of Maternal Health*, **36**, 131-140.
- [20] Morisaki, S. and Ogawa, K. (2003) Direction of Support for Couples Facing Childbirth with Their Husbands Present: To Obtain Greater Satisfaction in Childbirth with Their Husbands Present. *Women's Health Society Journal of Japan*, **2**, 104-111.
- [21] Tokiwa, Y. (2003) Relationship between Self-Evaluation of Childbirth Experience and Early Postpartum Depression. *Journal of Japan Academy of Midwifery*, **17**, 27-38. https://doi.org/10.3418/jjam.17.2_27
- [22] Matsuda, Y. (2018) Contexture of Husbands' Thoughts from Their First Time Childbirth Observation: Analysis of Birth Reviews against Couples. *Japanese Journal of Maternal Health*, **59**, 189-198.
- [23] Ikegami, N. (2021) Utilization of Online Support for Expectant and Nursing Mothers Who Are No Longer Able to Have Tachiai Deliveries. *The Japanese Journal for Midwives*, **75**, 741-746.
- [24] Yanagimura, N. (2022) [Midwifery Care during the COVID-19 Epidemic] Hospitals Accepting Pregnant and Nursing Mothers with Severe COVID-19: Practical Report of the Japanese Red Cross Medical Center Perinatal and Pediatric Center. *The Japanese Journal for Midwives*, **76**, 8-25.
- [25] Ishihata, R. and Ishikawa, N. (2021) Hospitals Accepting Expectant and Nursing Mothers with Mild to Moderate COVID-19 1: A Practice Report by Infection Control Midwives at Aiiku Hospital. *The Japanese Journal for Midwives*, **76**, 26-39.
- [26] Shimano, H. and Masuyama, R. (2021) Infection Control in the Perinatal-Response to the Third Wave of the New Coronavirus: Infection Control in the Maternity Ward, Support for the Impact and Issues on Expectant and Nursing Mothers. *Rinshō Josan Care*, **13**, 31-36.
- [27] Yoshida, E., Koyama, S., Denda, J., Mikoshiba, M., Amemiya, Y., Tsukada, M., Miyajima, Y. and Nishigaki, A. (2022) Motherhood Support by Public Health Nurses in Municipal Offices during COVID-19 Pandemic. *Shinshu Journal of Public Health*, **17**, 3-14.
- [28] Uchida, T. (2022) A Literature Review on Fathers' Childcare Anxiety/Stress and Childcare Support. *Bulletin of Saitama Medical University College*, **33**, 29-36.
- [29] Maeda, K. and Nakakita, Y. (2017) Literature Review on Factors of Parenting Stress in Mothers with Infants. *Journal of Mie Prefectural College of Nursing*, **21**, Article 97108.
- [30] Fujioka, N. (2013) The Fact-Finding Concerning the Difficulties of Rearing of Women with One-Year-Old Children and the Satisfaction with Their Husband's Participation in Childcare. *Japanese Journal of Maternal Health*, **54**, 173-181.
- [31] Ministry of Health, Labor and Welfare (2021) Child Care and Family Care Leave Act. <https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000130583.html>