

Changes in parental involvement and perceptions in parents of young children during the COVID-19 pandemic: A cross-sectional observational study in Japan

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Abstract: This study aimed to clarify changes in parental involvement with their children and parental perceptions related to parenting in both fathers and mothers of young children during the coronavirus disease 2019 (COVID-19) pandemic. A cross-sectional observational design was used. Data were collected using a web-based questionnaire from 28 fathers and 115 mothers between October 1 and November 30, 2020. Parents answered questions regarding themselves, basic sociodemographic variables, perceived changes in involvement with their children, the presence or absence of abusive behavior (*e.g.*, violence toward children), and parental perceptions related to parenting. Many parents indicated that they did not experience major changes in their involvement or perceptions compared to before the COVID-19 pandemic. Half of the fathers considered themselves to be in more physical contact or communication with their children; there was a significant difference between fathers and mothers regarding eating meals with their children ($p = 0.00$). Fathers felt tired due to parenting (35.7%) or a lack of free time (42.9%) during the COVID-19 pandemic. While significantly more mothers than fathers responded that their partners took care of their children ($p = 0.03$), significantly greater number of mothers than fathers also reported feeling overburdened ($p = 0.00$). Family support workers should help fathers maintain involvement with their young children without high stress levels and support mothers to reduce their heavy burden of parenting continuously. This would contribute to young children's growth and development despite a public health crisis.

Keywords: parenting, mothers, fathers, infants, preschool children

Introduction

The coronavirus disease 2019 (COVID-19) has wrought havoc worldwide. Every government implemented measures to prevent COVID-19's spread. In Japan, the government announced the first state of emergency on April 7, 2020, and later issued it several times in areas with many patients with COVID-19. The Japanese government did not carry out a lockdown like other countries but tackled COVID-19's spread through defensive measures such as recommendations to avoid the "Three Cs" which are closed spaces, crowded places, and close-contact settings. The government also recommended staying at home to limit the flow of people and reduce the spread of the virus. Although these measures did not have legal force, social systems have changed in various ways in response to the recommendations, requiring people to drastically change their lifestyle and adapt. Some people were able to adapt to changes well, while others were not. If we consider the change in parents' lifestyles and

interactions with children, adaptive parents increased their time at home smoothly and shared parenting and household chores among each other (1,2). However, some parents' household-related burdens or parenting stress increased by staying at home (3,4).

Previous studies on parents' lifestyles during the COVID-19 pandemic in other countries have reported similar trends. Many parents, mostly mothers, experienced difficult adjustments in dividing time between parenting and work, heavy responsibility for additional household chores and parenting, or isolation under lockdown (5-9). We should pay attention to the harmful effects on parents who could not adapt to changes after the COVID-19 pandemic. They also have some mental health problems, such as high levels of anxiety, depressive symptoms, and parenting stress (7,10-13). Sometimes, parenting burden or parental mental health problems have a negative effect on parents' involvement with their children and perceptions related to parenting. In fact, previous studies have reported that tiredness caused by parenting

burden increases parental negative emotions toward parenting, and parents who have suffered health losses display a negative attitude toward their children (14-17). However, there is a lack of studies regarding changes in parental involvement and perceptions during the COVID-19 pandemic.

The COVID-19 pandemic has imposed many limits on young children and their parents. In Japan, many institutions restricted young children and their parents to utility time, or the number of users was restricted to avoid the Three Cs. The number of parents who did not admit their children in day nurseries or to undergo medical examinations also increased to prevent coronavirus infections (18,19). As a result, contact between parents and family support workers decreased. In other words, not only did parents lose opportunities to seek support regarding matters relating to parenting or their children, but it also became difficult for family support workers to understand the conditions of parents and their children after the pandemic. Timely support for parents became difficult when they faced parenting problems. It can be considered that a lack of parental support leads to inappropriate parenting. In fact, a previous study reported that some parents felt that their psychological or social resources were fewer than before the COVID-19 pandemic (20). Young children tend to become targets of inappropriate parenting and are more susceptible to abuse than older children before the COVID-19 pandemic (21-23). However, there is also a lack of studies focusing on parents of young children after the COVID-19 pandemic.

We consider that it is necessary for family support workers to be mindful of the changes in parenting due to the COVID-19 pandemic and to provide additional support to parents. This study aimed to clarify changes in parental involvement with their children and perceptions related to parenting by fathers and mothers of young children during the COVID-19 pandemic. Based on the results of this study, we suggest ways in which support can be provided to fathers and mothers.

Materials and Methods

Participants

In this study, young children were defined as those aged six years old or less. We included parents whose children used institutions to cooperate in this study. Parents who could not read and answer the questionnaire written in Japanese or did not agree to participate in this study were excluded. The final participants of this study were 143 parents (28 fathers and 115 mothers).

Measures

Demographic data

Parents answered questions regarding their age, family

structure, years of education, employment status, annual household income, children's age, children's sex, and the number of children in the family.

Parental perceptions related to parenting

We explored parental perceptions related to parenting during the COVID-19 pandemic using a questionnaire (Supplemental Table 1, <https://www.globalhealthmedicine.com/site/supplementaldata.html?ID=47>) created for this study based on previous studies (18,24,25). The topics were perceived changes in interactions, the presence or absence of abusive behaviors toward young children, and perceptions related to parenting compared to before the COVID-19 pandemic. Parental abusive behavior is defined as any parental behavior that harms children, such as being physically violent toward a child or rejecting a child. Regarding perceived changes in the frequency of interactions compared to before the COVID-19 pandemic, parents were asked the following about their interactions with their children: daily care, playing, physical contact, communication, and eating a meal, using a five-point Likert-type scale ranging from *decreased very much* (0) to *increased very much* (4).

Parental abusive behavior was assessed using five items of parental performance: punching or kicking, shouting emotionally, cursing or threatening, parental neglect, and ignoring children. Participants chose the most closely applied answer regarding abusive behavior from four possible choices (*doing before but not after the pandemic*, *not doing before but doing after the pandemic*, *not doing both before and after the pandemic*, or *doing both before and after the pandemic*).

Regarding perceptions related to parenting, respondents answered the following seven questions: (a) I feel that my family bonds are strong, (b) I enjoy interaction with my children, (c) I feel pleasure in my children's growth, (d) I feel my partner takes care of the children, (e) I feel tired due to parenting, (f) I do not have enough free time, and (g) I cannot interact with the children because I am overburdened. Parents responded on a five-point Likert-type scale ranging from *strongly disagree* (0) to *strongly agree* (4).

Data collections

We conducted a web-based questionnaire survey in Tokyo. We sent letters with written requests for cooperation in this study to 23 nursery schools, six kindergartens, and three childcare support centers in one city in Tokyo. We explained the contents of this study to the managers or staff of these institutions who agreed to cooperate with this study before data collection. We requested that the institutions inform only parents who had children aged six years or younger. Information for inviting parents to participate in this study was provided by the managers or staff. Participants were recruited

between October 1st and November 30th, 2020, when the second wave of COVID-19 subsided in Japan. The online questionnaire was shared with participants during the same period. The opening page of the online questionnaire explained the study, including the purpose, methods, voluntary participation, anonymity, and contact information.

Statistical analysis

Categorical variables were presented as numbers and percentages, and continuous variables as mean and standard deviation (SD). We conducted the following analyses to explore statistical differences between fathers and mothers: (a) categorical variables were tested using the chi-square test or Fisher's exact test, and (b) parental years of education were examined using the Mann-Whitney U test. We conducted a residual analysis to explore which cells contributed to the significant association if we found significant differences using the chi-square test or Fisher's exact test in the three groups. Usually, adjusted residuals of $\pm 1.96 <$ and $\pm 2.58 <$ indicate $p < 0.05$ and $p < 0.01$, respectively. We used the Shapiro-Wilk test to assess the normality of distribution of the continuous variables.

We focused on parents who changed their abusive behavior before and after the COVID-19 pandemic. We conducted the McNemar test to explore the statistical differences in the presence or absence of abusive behavior before and after the pandemic.

We summarized several responses to control variables as follows: (a) the responses for perceived changes of interaction frequency were "increase", "static", or "decrease", and (b) the responses for perceived changes of parental perceptions were "agree", "static", or "disagree".

To calculate the appropriate sample size for comparison between two groups, we set up as follows: (a) effect size was 0.5, (b) level of significance was 0.05, (c) statistical power was 0.8. We estimated the rate of data unavailability at 20%. Eventually, we would need to enroll 80 parents for each groups. We conducted data analysis after excluding data items with missing values. Two-tailed P-values less than 0.05 were considered significant. The analysis was conducted using the IBM SPSS Statistics ver. 25 and R version 3.6.3.

Ethics

The study protocol was approved by the Institutional Review Board of the National Center for Global Health and Medicine (approval no: NCGM-G-003636-00). Before data collection, an anonymous survey was conducted. We confirmed the consent of the participants in this study using a checkmark placed by the participant in the confirmation box, which indicated the consent of the participant.

Results and Discussion

Table 1 shows the demographic data of the participants. The average number of education years was 15.9 (SD: 1.9) in fathers and 14.8 (SD: 1.6) in mothers. The average age of the children in fathers' group was 3.0 (SD: 1.7) and in mothers' group was 3.4 (SD: 1.8), and the ratio of boys to girls was one to one for both fathers and mothers. There was no significant difference between fathers and mothers in terms of demographic data, excluding years of education ($p = 0.04$) and employment status ($p = 0.00$). Most participants had a middle-to-high socioeconomic status.

In Table 2, we report the perceptions of changes in interaction frequency compared to before the COVID-19 pandemic. There was a significant difference between parents regarding eating with children ($p = 0.00$). Fathers eat meals with their children more often than before the COVID-19 pandemic.

Table 3 illustrates the perceived changes in the presence or absence of parental abusive behavior before and after the COVID-19 pandemic. There were no significant differences in abusive behavior between fathers and mothers.

Table 4 depicts the changes in parental perceptions related to parenting compared to before the first wave of the COVID-19 pandemic in Japan. There were significant differences between parents regarding partner's parenting ($p = 0.03$) and being overburdened ($p = 0.00$). Mothers indicated that fathers took part in parenting more than before COVID-19, and they were overburdened by parenting during the COVID-19 pandemic.

Most fathers answered that they did not feel any changes regarding their involvement with their young

Table 1. Participants' demographic data

Variables	Fathers n (%)	Mother n (%)	<i>p</i> [†]
Age (years)			0.81
20-29	1 (3.6)	6 (5.2)	
30-39	16 (57.1)	72 (62.6)	
> 40	11 (39.3)	37 (32.2)	
Employment Status			0.00**
Employed	26 (92.9)	68 (59.1)	
Not employed	2 (7.1)	47 (40.9)	
Family structure			1.00
Single-parent	0 (0.0)	4 (3.5)	
Two-parents	28 (100.0)	111 (96.5)	
Number of Children			0.12
1	13 (46.4)	34 (29.6)	
≥ 2	15 (53.6)	81 (70.4)	
Family Income (ten thousand yen)			0.10
< 300	1 (3.6)	6 (5.2)	
300-700	11 (39.3)	64 (55.7)	
> 700	14 (50.0)	32 (27.8)	
Non-response	2 (7.1)	13 (11.3)	

[†]Chi-square test or Fisher's exact test. ** $p < 0.01$.

Table 2. Comparison of perceptions of changes in interaction frequency in fathers and mothers

Perceptions	Fathers n (%)	Mother n (%)	p [†]
Daily care for children			0.58
increase	10 (35.7)	32 (27.8)	
static	18 (64.3)	79 (68.7)	
decrease	0 (0.0)	4 (3.5)	
Playing with children			0.60
increase	13 (46.4)	42 (36.5)	
static	14 (50.0)	66 (57.4)	
decrease	1 (3.6)	7 (6.1)	
Physical contact with children			0.09
increase	14 (50.0)	33 (28.7)	
static	13 (46.4)	77 (67.0)	
decrease	1 (3.6)	5 (4.3)	
Communication with children			0.07
increase	14 (50.0)	31 (27.0)	
static	14 (50.0)	79 (68.7)	
decrease	0 (0.0)	4 (3.5)	
Non-response	0 (0.0)	1 (0.8)	
Eating a meal with children			0.00**
increase	8 (28.6)	1 (0.8)	
Adjusted residual [‡]	5.41**	-5.41**	
static	19 (67.9)	112 (97.4)	
Adjusted residual [‡]	-5.06**	5.06**	
decrease	1 (3.6)	2 (1.7)	
Adjusted residual [‡]	0.61	-0.61	

[†]Chi-square test or Fisher's exact test. **p < 0.01. [‡]Adjusted residual: We conducted residual analysis to explore which cells contribute to the significant association if we found significant differences using the chi-square test or Fisher's exact test in the three groups. Usually, adjusted residual of ± 1.96 < and ± 2.58 < indicate p < 0.05 and p < 0.01.

children or their perceptions of parenting. Rather, the paternal frequency of interactions with their young children increased more than that of mothers. This finding is similar to that of previous studies (9,26,27). In particular, regarding eating meals with their children, there was a significant difference between fathers and mothers. This suggests that some fathers may have adapted well to the changes during the COVID-19 pandemic due to a shift in their lifestyle, such as eating at the same time as their young children. Moreover, 50% of the fathers agreed that their physical contact or communication with their children increased. We considered that changes in paternal lifestyle due to the COVID-19 pandemic increased positive father-child interactions. In addition, two-fifths of the fathers reported that they enjoyed interacting with their children (39.9%) and felt pleasure in their children's growth (46.4%). In other words, some fathers had positive parenting experiences during the COVID-19 pandemic. Parents' positive emotions toward their children can help relieve stress and moderate negative experiences for both parents and children (28). A previous study also reported that more fathers were involved with their children, and that more children's emotional well-being increased during the COVID-19 pandemic (29). Therefore, it is important for fathers to receive support to maintain their positive involvement with their children, as this benefits the children's healthy growth.

There is a risk that an exponential increase in the

Table 3. Comparison of perceptions of changes in the presence or absence of parental abusive behavior

Perceptions	Fathers n (%)	p [†]	Mother n (%)	p [†]
Punching or kicking		1.00		1.00
doing before but not after the pandemic	1 (3.6)		2 (1.7)	
not doing before but doing after the pandemic	1 (3.6)		3 (2.6)	
not doing both before and after the pandemic	23 (82.1)		99 (86.1)	
doing both before and after the pandemic	3 (10.7)		11 (9.6)	
Non-response	0 (0.0)		1 (0.8)	
Shouting emotionally		1.00		0.07
doing before but not after the pandemic	1 (3.6)		1 (0.8)	
not doing before but doing after the pandemic	1 (3.6)		7 (6.1)	
not doing both before and after the pandemic	21 (75.0)		55 (47.8)	
doing both before and after the pandemic	5 (17.9)		51 (44.3)	
Non-response	0 (0.0)		1 (0.8)	
Cursing or threatening		1.00		0.06
doing before but not after the pandemic	0 (0.0)		0 (0.0)	
not doing before but doing after the pandemic	1 (3.6)		5 (4.3)	
not doing both before and after the pandemic	24 (85.7)		101 (87.8)	
doing both before and after the pandemic	3 (10.7)		8 (7.0)	
Non-response	0 (0.0)		1 (0.8)	
Parental neglect		1.00		1.00
doing before but not after the pandemic	0 (0.0)		0 (0.0)	
not doing before but doing after the pandemic	1 (3.6)		0 (0.0)	
not doing both before and after the pandemic	27 (96.4)		115 (100.0)	
doing both before and after the pandemic	0 (0.0)		0 (0.0)	
Ignoring children		1.00		0.50
doing before but not after the pandemic	0 (0.0)		0 (0.0)	
not doing before but doing after the pandemic	1 (3.6)		2 (1.7)	
not doing both before and after the pandemic	25 (89.3)		106 (89.8)	
doing both before and after the pandemic	2 (7.1)		6 (5.2)	
Non-response	0 (0.0)		1 (0.8)	

[†]McNemar test.

Table 4. Comparison of changes in parental perceptions related to parenting in fathers and mothers

Perceptions	Fathers n (%)	Mother n (%)	p [†]
I feel that my family bonds are strong.			0.33
Agree	10 (35.7)	43 (37.3)	
Static	16 (57.1)	70 (60.9)	
Disagree	2 (7.1)	2 (1.7)	
I enjoy interaction with my children.			0.40
Agree	11 (39.3)	30 (26.1)	
Static	15 (53.6)	76 (66.1)	
Disagree	2 (7.1)	8 (7.0)	
Non-response	0 (0.0)	1 (0.8)	
I feel pleasure in my children's growth.			0.27
Agree	13 (46.4)	54 (47.0)	
Static	14 (50.0)	61 (53.0)	
Disagree	1 (3.6)	0 (0.0)	
I feel my partner takes care of the children.			0.03*
Agree	4 (14.3)	42 (36.5)	
Adjusted residual [‡]	-2.37 [†]	2.37 [*]	
Static	23 (82.1)	62 (53.9)	
Adjusted residual [‡]	2.55 [*]	-2.55 [*]	
Disagree	1 (3.6)	7 (6.1)	
Adjusted residual [‡]	-0.56	0.56	
Not having partner	0 (0.0)	4 (3.5)	
I feel tired due to parenting.			0.37
Agree	10 (35.7)	56 (48.7)	
Static	18 (64.3)	57 (49.6)	
Disagree	0 (0.0)	1 (0.8)	
Non-response	0 (0.0)	1 (0.8)	
I do not have enough free time.			0.37
Agree	12 (42.9)	57 (49.6)	
Static	16 (57.1)	52 (45.2)	
Disagree	0 (0.0)	6 (5.2)	
I cannot interact with the children because I am overburdened.			0.00**
Agree	3 (10.7)	46 (40.0)	
Adjusted residual [‡]	-2.93**	2.93**	
Static	22 (78.6)	65 (55.7)	
Adjusted residual [‡]	2.22*	-2.22*	
Disagree	3 (10.7)	4 (4.3)	
Adjusted residual [‡]	1.32	-1.32	

[†]Chi-square test or Fisher's exact test. ** $p < 0.01$. [‡]Adjusted residual: We conducted residual analysis to explore which cells contribute to the significant association if we found significant differences using the chi-square test or Fisher's exact test in the three groups. Usually, adjusted residual of $\pm 1.96 <$ and $\pm 2.58 <$ indicate $p < 0.05$ and $p < 0.01$.

amount of parenting that is required can cause parents to experience negative emotions toward parenting, parental burnout, or abusive behavior toward their children. In fact, many international agencies such as the World Health Organization warned that children and their families were at risk due to increased parenting stress and violence against children during the COVID-19 pandemic (30,31). In this study, one-third of fathers reported feeling tired due to parenting (35.7%) or did not have enough free time (42.9%). Tiredness and dissatisfaction with free time can easily trigger negative emotions toward parenting or parental burnout (25,32). Moreover, parents often take responsibility for parenting and their job in parallel at home during the COVID-19 pandemic. Fathers need to draw boundaries

between parenting and their work with good balance. However, this is not easy for fathers to do because many fathers are inexperienced at balancing parenting and their work and may not have efficient strategies unlike mothers (33). Thus, it is important to support fathers so that paternal involvement does not turn into heavy parenting burdens.

Mothers who answered that their frequency of daily care for children decreased were much fewer than mothers who answered that their frequency increased or remained static. In other words, mothers still had an increased parenting responsibility during the COVID-19 pandemic. This finding may complement previous studies (34,35). The burden of households or parenting inescapably increases due to staying at home, and it is likely to be borne mainly by mothers. As a result, maternal parenting did not reduce even if fathers had cooperated more than they did before the COVID-19 pandemic. Additionally, more than half of the mothers were employed, and approximately 40% agreed that they felt tired due to parenting or could not interact with their children because they were overburdened. Caregivers often adjust their time or work according to their family's needs, and consequently, they can experience more work-related adjustments and pressure compared to before the lockdown (36-38), all of which can lead to exhaustion. The longer the COVID-19 pandemic continues, the higher the risk of developing maternal mental health problems or burnout. Maternal mental health problems or burnout can lead to maternal abusive behavior toward children and mental health problems in children (7,39,40). In fact, some mothers answered that they displayed abusive behavior toward their children after the COVID-19 pandemic, even though they did not before the pandemic. Therefore, we recommend that support for mothers be provided urgently.

Based on the findings of this study, we have identified some implications for practice. We recommend that the support provided by family support workers to both fathers and mothers should reflect the following changes in parenting that resulted from the COVID-19 pandemic. Some fathers felt tired because of parenting or did not have enough free time. Previous studies reported that paternal resilience is associated with parent-child relationship closeness, and that parents who had good parent-child relationships had reduced parental burnout scores during the COVID-19 pandemic (35,41). In other words, it may be possible to lighten the paternal burden of parenting by helping fathers to have good parent-child relationships. Family support workers should assess father-child relationships and provide appropriate support for fathers. Moreover, a previous study showed that fathers who had good relationships with other fathers during the COVID-19 pandemic felt that this had a positive impact on their mental health (42). Therefore, it is also important to help fathers

find opportunities for recreational activities during parenting. Family support workers should provide fathers with the opportunity to interact with peers in line with current COVID-19 measures and policies, such as online or outdoor meetings, to maintain involvement with their young children without negative emotions toward parenting.

Some mothers felt tired due to parenting or could not interact with their children because they were overburdened. Therefore, family support workers should provide mothers with support to reduce their heavy burden of continuous parenting. Mothers have lost the opportunity to seek support to prevent coronavirus infections. It is pointed out that limited access to social support can lead to parental burnout or inadequate parenting behavior (20,43,44). We recommend that family support workers develop a new approach to parenting support so that mothers can easily receive support without worrying about being infected with COVID-19. Family support workers may also provide parenting support services using online platforms, wherein mothers can consult with family support workers about parenting. Concurrently, it is important to train specialists in parenting support because sufficient staffing is even more necessary to help mothers than it was before the COVID-19 pandemic. This will facilitate healthy parenting, healthy growth in children, and a healthy adjustment to the COVID-19 crisis.

This study has several limitations. First, there was a lack of sufficient sample size in a limited zone and an imbalance between the numbers of fathers and mothers. Second, this study is based on parental self-evaluation, and some answers may differ from actual situations. The possibility of recall bias cannot also be excluded. Future studies would benefit from a larger sample size and should include parents from various backgrounds. Additionally, future studies should objectively evaluate parental perceptions and involvement with young children and conduct longitudinal observations.

Conclusions

During the COVID-19 pandemic, approximately half of the fathers experienced positive changes in parenting, while approximately 40% of mothers experienced negative changes. It is suggested that family support workers should provide support for parenting by both fathers and mothers. This would contribute to young children's healthy growth and development despite a public health crisis.

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