



Social Support and Depression Among Parents of Japanese Preschoolers During the Coronavirus Disease 2019 Pandemic

Nozomi Sonoda^{1,*}, Eriko Matsunaka^{2,3}, Makiko Hashimoto⁴, Mayuko Utsunomiya⁵, Hiroko Kumai² and Narumi Ooshige⁶

¹Faculty of Nursing, Kansai Medical University, 2-2-2 Shinmachi, Hirakata, Osaka 573-1004, Japan

²Japanese Red Cross Kyushu International College of Nursing, 1-1 Asty, Munakata, Fukuoka 811-4157, Japan

³Kyushu University, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812-8582, Japan

⁴Yamaguchi University, 1-1-1 Minami-Kogushi, Ube-shi, Yamaguchi 755-8505, Japan

⁵Japan International Cooperation Agency (JICA), Kyushu Center, 2-2-1 Hirano, Yawatahigashi-ku, Kitakyushu, Fukuoka 805-8505, Japan

⁶University of Nagasaki, Siebold 1-1-1 Manabino, Nagayo-cho, Nishi-Sonogi-gun, Nagasaki 851-2195, Japan

Abstract

To clarify changes in social support and depression among Japanese parents of preschool children during the coronavirus disease 2019 (COVID-19) pandemic, we conducted a web-based quantitative cross-sectional descriptive study. The study participants were Japanese parents living in a suburban city in Japan who were rearing preschoolers. We collected data on social support and depression from February to May 2021. In total, questionnaires from 286 parents were analyzed. The findings revealed a significant difference in maternal social support before compared with during the pandemic. Scores on the Center for Epidemiologic Studies Depression Scale indicated that seven fathers (25.9%) and 65 mothers (25.1%) reported experiencing depressive symptoms during the pandemic. The scores for mothers receiving family support were significantly lower compared with those who were not. These findings suggest that in Japan, the COVID-19 pandemic impacted the social support received by mothers and significantly affected the mental health of mothers who did not receive family support. Therefore, enhanced mental health support needs to be provided to single mothers and those who do not receive social support during disasters such as pandemics.

Publication History:

Received: July 11, 2024

Accepted: July 22, 2024

Published: July 24, 2024

Keywords:

Child Care, Community Support, COVID-19, Cross-sectional Study, Family Support, Fathers, Mothers, Mental Health

Introduction

Coronavirus disease 2019 (COVID-19) emerged in December 2019, and by March 2020, had led to a global pandemic with broad and sweeping effects worldwide that resulted in drastic changes to people's lives, work, and access to health care. Governments around the world instituted lockdowns and rolled out vaccines to fight the spread of COVID-19.

Consequently, societies have had to adapt to a life "with COVID-19" or "post-COVID-19".

In Japan, the first case of COVID-19 was reported in January 2020, and infections spread rapidly throughout the nation [1]. A state of emergency was declared for major areas (i.e., Saitama, Chiba, Tokyo, Kanagawa, Osaka, Hyogo, and Fukuoka) on April 7 [2], and on April 16, was extended nationwide [3]. The state of emergency entailed requests to refrain from nonessential outings, such as moving across prefectures or attending events likely to result in the disease transmission. Working from home (telework) and staggered work hours were also encouraged as a means of reducing contact with people as infection prevention measures. In addition, the Japanese government strongly recommended mask-wearing, handwashing, avoiding high-density areas, and ensuring appropriate indoor ventilation. These measures, among others, resulted in dramatic changes in the lives of many people.

Lockdowns resulting from the pandemic have reportedly had not only physiological, but also psychological effects on people across the globe. Gloster et al. (2020) [4] surveyed 9,565 people from 78 countries (age ≥ 18 years) to determine mental health outcomes during pandemic-induced lockdowns and examine known predictors. Their survey found that social support was not only the strongest predictor of depression, but also the largest protective factor against

stress. Thus, social support appears to have been essential during the COVID-19 pandemic-induced lockdowns.

Epidemics and pandemics are also known to affect parents [5-7]. One systematic review found that parents experienced high levels of stress, anxiety, and financial burden during pandemics [6]. Moreover, parental concern about their children becoming infected has also been reported to increase stress, and outbreaks of diseases such as COVID-19, H1N1, human immunodeficiency virus, and Ebola have been shown to result in severe anxiety or depression among parents [7]. Cameron et al. (2020) [5] surveyed 641 mothers of children aged 0-8 years to assess the prevalence of symptoms of maternal depression and anxiety during the COVID-19 pandemic, current mental health service use, and barriers to access. They found clinically-relevant depression in 33.16%, 42.55%, and 43.37% of mothers of children aged 0-18 months, 18 months to 4 years, and 5-8 years, respectively, with the respective prevalences of anxiety being 36.27%, 32.62%, and 29.59% [5].

The lockdowns associated with the COVID-19 pandemic seem to have affected the mental health of parents; however, the specific impact of the pandemic on parents raising children in Japan has not been clarified. Given this background, the present study aimed to

***Corresponding Author:** Dr. Nozomi Sonoda, Faculty of Nursing, Kansai Medical University, 2-2-2 Shinmachi, Hirakata, Osaka 573-1004, Japan, Tel: +81-72-804-0054; E-mail: 15dn010@slcn.ac.jp

Citation: Sonoda N, Matsunaka E, Hashimoto M, Utsunomiya M, Kumai H, et al. (2024) Social Support and Depression Among Parents of Japanese Preschoolers During the Coronavirus Disease 2019 Pandemic. Int J Nurs Clin Pract 11: 393. doi: <https://doi.org/10.15344/2394-4978/2024/393>

Copyright: © 2024 Sonoda et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

elucidate the changes in social support and parental depression among parents of preschoolers under the state of emergency declaration during the COVID-19 pandemic in Japan. The findings could be expected to be useful for better care provision among parents during disasters such as pandemics.

Methods

Study design

This study was designed as a web-based quantitative cross-sectional descriptive study.

Setting and Participants

This study was conducted at 16 facilities (i.e., nurseries and kindergartens) and during health checkups for 3-year-olds at a community health center in Fukuoka Prefecture from February to May 2021. The second state of emergency declaration in Fukuoka Prefecture was in effect from January 14 to February 28, 2021. Participants with 3-year-old children were initially recruited at the health checkups mandated by municipal governments and conducted at community health centers. The parents' data, excluding those with 3-year-olds mentioned above, were collected at kindergartens and nurseries. All participants were instructed to avoid providing duplicate answers.

Japanese mothers and fathers raising preschool children (age range, 2–6 years) and living in a city in Fukuoka Prefecture, Japan, were eligible for participation in this study. The city, which has a population of 4,477 children aged 2–6 years, was targeted because it represents the typical demographics of Japanese cities.

Recruitment was stopped when the distribution of questionnaires was completed in May 2021.

Data Collection

Social support

Social support resources were as follows: partners, family members, friends, neighbors, business associates, nursery schoolteachers, primary care physicians, public health nurses, childcare support centers, babysitters, and others.

The degree of social support received before and during the COVID-19 pandemic was assessed using a five-point Likert-type scale (from 0 = None at all to 4 = A significant amount).

Depression

The Japanese version of the Center for Epidemiologic Studies Depression Scale (CES-D Japanese ver.) [8] was used to assess symptoms related to depression during the COVID-19 pandemic. The CES-D was developed by Radloff (1977) [9] and translated into Japanese by Shima et al. (1985) [8]. The reliability of the CES-D Japanese ver. has been validated (re-test method: $r = .789-.839$). The CES-D Japanese ver. consists of 20 items that are assessed using a three-point Likert-type scale. Scores on the CES-D Japanese ver. range from 0 to 60, with a cutoff of 16.

Participant characteristics

The following characteristics of the participants were assessed: age, living situation, education, presence of physiological or psychological

illness, financial status, number of children, children's frequency of kindergarten/nursery school attendance before the COVID-19 pandemic, and presence of a chronic condition in the child.

Data Collection Procedures

Data were collected using a web-based questionnaire. The participants were recruited through the 16 cooperating institutions and health checkups for 3-year-olds. The staff at the cooperating institutions distributed information about the study along with entry forms for the fathers and/or mothers of children aged < 6 years. The participants could respond to the questionnaires by simply scanning the QR code on the entry forms, after which, they were guided to answer the questions.

Statistical Analysis

All data were analyzed using descriptive statistics. The chi-square test was used to compare social support before and during the COVID-19 pandemic. The mean scores \pm standard deviations (SDs) on the CES-D Japanese ver. were calculated and then compared across different living conditions and levels of social support using an independent t-test.

Statistical analysis was performed using SPSS Statistics with the Advanced Statistics module (version 25, Base Edition; IBM Japan, Tokyo, Japan) with a two-sided 5% level of significance.

Ethical Considerations

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human subjects/patients and approved by the Research Ethics Committee of the Japanese Red Cross Kyushu International College of Nursing (No. 20-016).

Results

Participant characteristics

A total of 2,154 questionnaires were distributed, and 318 were returned from February 2021 to April 2021, for a return rate of 14.8%. Of these, 286 (89.9%) questionnaires, excluding duplicate responses and missing inputs, were included in the analysis. The participant characteristics are shown in Table 1. Most participants were living with their child and partner in a nuclear family unit.

In terms of economic situation, 40.7% of the fathers and 28.2% of the mothers reported a decline in household income during compared with before the COVID-19 pandemic.

Social support and depression

Data on social support before and during the COVID-19 pandemic were collected from 27 fathers and 259 mothers. The social support received by these fathers and mothers before and during the COVID-19 pandemic is shown in Table 2.

The chi-square test was conducted to compare social support before and during the COVID-19 pandemic. Both fathers and mothers received the greatest support from their partners before and during the COVID-19 epidemic. No significant difference in the social support received by fathers before and during the COVID-19 pandemic was found. However, a significant difference in the social support received

Table 1: Baseline characteristics of the participants.

Characteristics	Fathers n=27			Mothers n= 259		
Age (Years)						
10s	n	%	0	(0.0%)	1	(0.4%)
20s	n	%	1	(3.7%)	18	(6.9%)
30s	n	%	20	(74.1%)	183	(70.7%)
40s	n	%	6	(22.2%)	57	(22.0%)
Living situation						
Living with own child	n	%	1	(3.7%)	14	(5.4%)
Living with own child and partner	n	%	25	(92.6%)	225	(96.8%)
Living with own child, partner, and own/partner's father/mother	n	%	1	(3.7%)	19	(7.3%)
Other	n	%	0	(0.0%)	1	(0.4%)
Education						
Junior hihg School	n	%	0	(0.0%)	3	(1.2%)
High School	n	%	6	(22.2%)	38	(14.7%)
College/university	n	%	11	(40.7%)	94	(36.3%)
Gradiate school	n	%	6	(22.2%)	10	(3.9%)
Other	n	%	4	(14.8%)	114	(44.0%)
Physiological illness						
Yes	n	%	1	(3.7%)	18	(6.9%)
No	n	%	26	(96.3%)	241	(93.1%)
Psychological illness						
Yes	n	%	0	(0.0%)	9	(4.5%)
No	n	%	27	(100.0%)	250	(96.5%)
Changes in finances compared with before the COVID-19 pandemic						
Improved	n	%	1	(3.7%)	13	(5.0%)
Stayed about the same	n	%	15	(55.6%)	160	(61.8%)
Wors end	n	%	11	(40.7%)	73	(28.2%)
I don't know	n	%	0	(0.0%)	13	(5.0%)
Number of children						
One	n	%	5	(18.5%)	64	(24.7%)
Two	n	%	13	(48.1%)	134	(51.7%)
Three	n	%	8	(29.6%)	55	(21.2%)
Four	n	%	1	(3.7%)	5	(1.9%)
Five	n	%	0	(0.0%)	1	(0.4%)
Frequency of kindergarten/nursery school attendance of the child before the COVID-19 pandemic						
> 5 times/week	n	%	21	(77.8%)	191	(73.7%)
3-4 times/week	n	%	3	(11.1%)	12	(4.6%)
1-2 times/week	n	%	0	(0.0%)	3	(1.2%)
None	n	%	3	(11.1%)	53	(20.5%)
CES-D score	M	[SD]	12.0	[9.2]	11.7	[9.0]

CES-D score: center for Epidemiologic Studies Depression Scale

by fathers before and during the COVID-19 pandemic was found. However, a significant difference in the social support received by mothers from family members, friends, primary care physicians, childcare support centers, and others before and during the COVID-19 pandemic was found, with p-values of .045, .010, .021, < .001, and .004, respectively.

Scores on the CES-D Japanese ver. were obtained for 27 fathers and 259 mothers. The mean scores \pm SDs among fathers and mothers were 12.0 ± 9.2 (range, 0–35) and 11.7 ± 9.0 (range, 0–46), respectively. Seven fathers (25.9%) and 65 mothers (25.1%) exceeded the cutoff value of 16.

A comparison of scores on the CES-D Japanese ver. across different living conditions and levels of social support revealed the following.

In terms of living situations, the mean scores \pm SDs of mothers living with only their children ($n = 14$) and those living with their children and partner/family members ($n = 245$) were 16.4 ± 9.9 and 11.5 ± 8.9 , respectively, with p-values of .045 (Table 3). Regarding social support, CES-D scores were compared according to the support received from family members, friends, primary care physicians, childcare support centers, and other sources, with the results shown in Table 4. The results of t-tests indicated that the mean CES-D score \pm SD for mothers who were receiving support from a partner support during the COVID-19 pandemic was 10.3 ± 7.7 , whereas that for mothers receiving no support was significantly higher (16.0 ± 11.1 ; $p < .000$). Similarly, mothers receiving no support from family members or neighbors had significantly higher CES-D scores than mothers who were receiving support ($p = .025$ and $p = .005$, respectively).

Table 2: Changes in support status among fathers and mothers by source of support before and during the COVID-19 pandemic.

Support status			Before n = 27		Fathers During n = 27		P-value	Before n = 259		Mother During n = 259		P-value
Partners												
Received	n	%	21	(77.8%)	21	(77.8%)	1.000	184	(71.0%)	195	(75.3%)	.275
Not received	n	%	6	(22.2%)	6	(22.2%)		75	(29.0%)	64	(24.7%)	
Family Members												
Received	n	%	17	(63.0%)	19	(70.4%)	.564	175	(67.6%)	153	(59.1%)	.045 *
Not received	n	%	10	(37.0%)	8	(29.6%)		84	(32.4%)	106	(40.9%)	
Friends												
Received	n	%	2	(7.4%)	0	(0.0%)	.150	67	(25.9%)	43	(16.6%)	.010 *
Not received	n	%	25	(92.6%)	27	(100.0%)		192	(74.1%)	214	(83.4%)	
Neighbors												
Received	n	%	3	(11.1%)	2	(7.4%)	.639	38	(14.7%)	29	(10.8%)	.188
Not received	n	%	24	(88.9%)	25	(92.6%)		221	(85.3%)	231	(89.2%)	
Business Associates												
Received	n	%	6	(22.2%)	3	(11.1%)	.273	65	(25.1%)	63	(24.3%)	.839
Not received	n	%	21	(77.8%)	24	(88.9%)		194	(74.9%)	196	(75.7%)	
Nursery School teachers												
Received	n	%	6	(22.2%)	6	(22.2%)	1.000	143	(55.2%)	157	(60.6%)	.213
Not received	n	%	21	(77.8%)	21	(77.8%)		116	(44.8%)	102	(39.4%)	
Primary care physician												
Received	n	%	6	(22.2%)	3	(12.5%)	.273	102	(39.4%)	77	(29.7%)	.021 *
Not received	n	%	21	(77.8%)	24	(87.5%)		157	(60.6%)	182	(70.3%)	
Public Health nurses												
Received	n	%	0	(0.0%)	0	(0.0%)	-	12	(4.6%)	9	(3.5%)	.504
Not received	n	%	27	(100.0%)	27	(100.0%)		247	(95.4%)	250	(96.5%)	
Child care support centers												
Received	n	%	3	(12.5%)	2	(7.4%)	.639	51	(19.7%)	22	(8.5%)	.000 *
Not received	n	%	24	(87.5%)	25	(92.6%)		208	(80.3%)	237	(91.5%)	
Babysitters												
Received	n	%	0	(0.0%)	0	(0.0%)	-	10	(3.9%)	5	(1.9%)	.190
Not received	n	%	27	(100.0%)	27	(100.0%)		249	(96.1%)	254	(98.1%)	
Others												
Received	n	%	1	(3.7%)	0	(0.0%)	.313	57	(22.0%)	32	(12.4%)	.004 *
Not received	n	%	26	(96.3%)	27	(100.0%)		202	(78.0%)	227	(87.6%)	
* <i>P</i> < 0.05 The Chi-square test was conducted												

Table 3: Comparison of CES-D scores based on living situation.

	n	Mean	SD	P-value	t	F
Fathers						
Living with own child	1	20.0	-	.386	.883	25
Living with own child and another family member	26	11.7	9.3			
Mothers						
Living with own child	14	16.4	9.9	.045	2.014	257
Living with own child and another family member	245	11.5	8.9			

$p < 0.05$

Independent *t*-tests were conducted.

Table 4: Comparison of CES-D scores based on support status by sources of support during the COVID-19 pandemic.

	Support received from			Support not received from			<i>t</i>	<i>p</i> -value	F
	n	Mean	SD	n	Mean	SD			
Fathers									
Partners	21	11.2	8.8	6	14.7	10.9	-.808	.427	25
Family members	19	11.9	8.7	8	12.0	10.7	-.013	.990	25
Friends	0	—	—	27	12.0	9.2	—	—	—
Neighbors	2	16.5	4.9	25	11.6	9.5	.715	.482	25
Business associates	3	18.3	13.5	24	11.2	8.7	1.283	.211	25
Nursery school teachers	6	13.0	9.0	21	11.7	9.5	.306	.762	25
Primary care physician	3	12.7	9.1	24	11.9	9.4	.137	.892	25
Public health nurses	0	—	—	27	12.0	9.2	—	—	—
Childcare support centers	2	4.0	5.7	25	12.6	9.2	-1.283	.211	25
Babysitters	0	—	—	27	12.0	9.2	—	—	—
Others	0	—	—	27	12.0	9.2	—	—	—
Mothers									
Partners	195	10.3	7.7	64	16.0	11.1	-3.761	.000	83.77 *
Family members	153	10.7	8.5	106	13.2	9.5	-2.254	.025	257 *
Friends	43	9.9	9.4	216	12.1	8.9	-1.447	.149	257
Neighbors	28	8.5	5.5	231	12.1	9.3	-2.979	.005	48.09 *
Business associates	63	10.2	8.1	196	12.2	6.2	-1.527	.128	257
Nursery school teachers	157	11.0	8.3	102	12.9	9.9	-1.659	.099	189.56
Primary care physician	77	11.7	8.4	182	11.8	9.3	-.092	.927	257
Public health nurses	9	16.9	8.4	250	11.6	9.0	1.752	.081	257
Childcare support centers	22	13.9	7.6	237	11.5	9.1	1.156	.249	257
Babysitters	5	16.4	8.4	254	11.7	9.0	1.169	.244	257
Others	32	12.1	9.2	227	11.7	9.0	.257	.797	257
*: <i>P</i> < 0.05 Independent <i>t</i> -tests were conducted									

Discussion

Participant characteristics

Although the present survey was conducted in only one city in Fukuoka Prefecture, Japan, most participants were living with their child and partner in a nuclear family unit, indicating that they represented the general features of modern Japanese households with children [10].

The results indicating that the participants' economic situations had deteriorated during compared with before the COVID-19 pandemic were similar to the changes seen among the general Japanese population as a result of COVID-19 [11]. These findings suggest that the present sample generally reflects the situation of parents of preschoolers in Japan.

Social support and depression

A decrease in social support is likely to have a significant impact on mental health, particularly in regard to the prevalence and worsening of depression among women in the child-rearing period. In the present study, 25.1% of mothers with reduced support from family members and others exceeded the CES-D cutoff point. In their

review, Kotlar et al. (2021) [12] reported that feelings of anxiety and depression were associated with a maternal fear of vertical transmission of the virus to their infants, the limited accessibility of antenatal care resources, and a lack of social support; these experiences were also a source of stress for pregnant and postpartum women without COVID-19. Furthermore, the social distancing and isolation/quarantine procedures implemented during the pandemic increased the risk of psychological problems among pregnant women and mothers [12].

Furthermore, according to our findings, CES-D scores were significantly higher among women with less support from family members and other sources. During the COVID-19 pandemic, an increased childcare burden has been noted in mothers as compared with fathers [13], and mothers of children of primary school age have been reported to have worse mental health status than other women [14].

It is essential to provide enhanced mental health support when situations that can change the circumstances surrounding social support arise, such as pandemics and disasters, especially for mothers who are raising young children and have no sources of support.

Conclusions

The present findings revealed that the COVID-19 pandemic notably impacted the social support received by mothers in Japan, and significantly affected the mental health of mothers who were not receiving family support. Thus, it is essential to provide enhanced mental health support for single mothers and those who are not receiving social support during disasters such as pandemics. These findings also suggest the need to clarify the long-term impacts of the COVID-19 pandemic on the mental health of parents of preschool children.

Competing Interests

The authors declare that they have no competing interests.

Author Contributions

All authors contributed to the design and development of the project. N.S., E.M., M.U., H.K., M.H., and N.O. were responsible for the data collection; N.S., E.M., M.U., H.K., M.H., and N.O. contributed to the analysis. N.S. was primarily responsible for the writing of the manuscript, with contributions from all authors.

Acknowledgments

We would like to thank all the parents who participated in this study. We would also like to thank all the staff members of the participating nurseries, kindergartens, and health checkup centers for the 3-year-olds involved in this study. We offer our special thanks to Dr. Nakayama Teruyuki, statistician at the Japanese Red Cross Kyushu International College of Nursing, for the assistance with the statistical analyses.

Funding

This study was supported by a Japan Society for the Promotion of Science Grant-in-Aid for Young Scientists (No. 19K19698, Principal Investigator: Dr. Nozomi Sonoda) and a grant from the Japanese Red Cross Kyushu International College of Nursing Incentive Research Fund (No. 20-3, Principal Investigator: Eriko Matsunaka).

References

1. Ministry of Health, Labour and Welfare. (2023). Visualizing the data: information on COVID-19 infections. Retrieved October 15, 2021.
2. Prime Minister's Office of Japan. (2020a). [COVID-19] Declaration of a State of Emergency in response to the Novel Coronavirus Disease (April 7). Retrieved October 15, 2021.
3. Prime Minister's Office of Japan. (2020b). [COVID-19] Declaration of a State of Emergency in response to the Novel Coronavirus Disease (April 16).
4. Gloster TA, Lamnison D, Lubenko J, Presti G, Squatrito V, et al. (2020) Impact of COVID-19 pandemic on mental health: an international study. *PLOS one* 15: e0244809.
5. Cameron EE, Joyce MK, Delaquis PC, Reynolds K, Protudjer LPJ, et al. (2020) Maternal psychological distress & mental health service use during the COVID-19 pandemic. *J Affect Disord* 276: 756-774.
6. Fong CV, Larocci G (2020) Child and family outcomes following pandemics: A systematic review and recommendations on COVID-19 policies. *J Pediatr Psychol* 45: 1124-1143.
7. Araújo LA, Veloso CF, Souza MC, Azevedo JMC, Tarro G (2021) The potential impact of the COVID-19 pandemic on child growth and development: a systematic review. *J Pediatr (Rio J)* 97: 369-377.
8. Shima S, Shikano T, Kitamura T (1985) Atarashii yokuutusei hyoukashakudo ni tuite [A New Depressive Self-Rating Scale]. *Seishinigaku* 27: 717-723.
9. Radloff LS (1977) The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychological Measurement* 1: 385-401.
10. National Institute of Population and Social Security Research (2018) The 6th National Survey on Family in Japan, 2018. Survey Series, 38. Retrieved January 30, 2023.
11. The Japan Institute for Labour Policy and Training. (2023). Shingatakorona ga koyou• shugyou• shitsugyou ni ataeru eikyou. Kokunaitoukei: tingin. [Information related to COVID-19 infection: impact of COVID-19 on employment, work and unemployment. National statistics: wages]. Retrieved January 30, 2023.
12. Kotlar B, Gerson ME, Petrillo S, Langer A, Timeier H (2021) The impact of the COVID-19 pandemic on maternal and perinatal health: a scoping review. *Reproductive health* 18: 10.
13. Andrew A, Cattan S, Dias C. M, Farquharson C, Kraftman L, et al. (2020). The gendered division of paid and domestic work under lockdown. *Covid economics* 39: 109-138.
14. Yamamura E, Tsutsui Y (2021) School closures and mental health during the COVID-19 pandemic in Japan. *Journal of Population Economics* 34: 1261-1298.