

The Effect of Mother's Corona 19 Stress on Infant's Problem Behavior: Mediating Effect of Parenting Efficacy

Yong Wang^{1,*}, Ki-Hyung Bae^{2,3,4}

¹Sejong University, PhD in Economics, Seoul, Korea.

²Doctor degree, Professor of Economics, Sejong University, Seoul, Korea.

³Dean of Graduate School of Science and Technology, Sejong University, Seoul, Korea.

⁴President of the Korea Cultural Industries Association, Korea.

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Corresponding author: Yong Wang, Sejong University, Seoul, Korea; Art Management Institute, Sangmyung University, Seoul, Korea.

Email: 1036373640@qq.com

Abstract

Purpose: This study was to examine the mediating effect of parenting efficacy on the effect of mother's COVID-19 stress on infant's problem behavior. **Methods:** The subjects of this study were a total of 204 mothers of children aged 3-5 years in kindergarten and day care centers. The 'Covid-19 Stress Scale for Koreans' to measure the stress of Corona 19, the 'Korean Version of the Parenting Efficacy Scale' to measure the parenting efficacy, and the 'Infant Behavior Questionnaire' tool to measure the problem behavior of infants Research data were collected. The collected data were analyzed using the Pearson moment correlation and the PROCESS macro analysis proposed by Hayes (2018). **Results:** First, there was a negative correlation between mother's Corona 19 stress and parenting efficacy, and a positive correlation was found between Corona 19 stress and problem behavior. There was a negative correlation between parenting efficacy and problem behavior. Next, the mother's Corona 19 stress did not have a direct effect on the problem behavior of the infant, and a fully mediating effect was found that affected the problem behavior through the sense of parenting efficacy. **Conclusion:** This study provided basic data for reducing the problem behaviors of infants in the Corona 19 situation by proving the partial mediating effect of parenting efficacy in the effect of mother's Corona 19 stress on the relationship between problem behaviors of infants.

Keywords

Corona stress, mother, problem behavior, parenting efficacy

1. Introduction

After the outbreak of the coronavirus (COVID-19) in Wuhan, China in 2019, it has spread worldwide, and since the first confirmed case in Korea on January 20, 2020, it has been extended to the fourth epidemic stage until now. Accordingly, on February 23, 2020, the government raised the infectious disease crisis level to the highest level of severity, and social distancing, hand washing for 30 seconds, eating on personal plates, and refraining from conversation during meals have become the norms of daily life (Mijeong Jin, Miae Seong, Seohee Son, Jaeon Yoo et al., 2020). Due to this, many people are unable to interact with others due to the fear of infection and living at home is becoming a daily routine.

More and more people are complaining of psychological problems due to Corona, such as new words like Corona Blue appearing (Eun-Ha Kim, So-Young Park, Ye-Ji Lee, & Hyun Park, 2021). The spread of COVID-19 is a major stress factor for families along with social anxiety and changes, and it causes stress for all family members individually due to unexpected changes in family life (Mijeong Jin et al., 2020). In relation to this, epidemics of infectious diseases act as direct and indirect stress factors for infants and promote maladaptation and problematic behaviors in infants and young children (Mochida, Sanada, Lee, Takaoka et al., 2021).

Problem behavior in early childhood refers to maladaptive and inappropriate behaviors that appear in the child's overall developmental areas such as body, cognition, emotion, and sociality (Ji Seong-ae and Kim Seong-hyun, 2013). In particular, problem behavior in children is a strong predictor of behavior problems, peer rejection, and low academic achievement in children and adolescence. should be prevented (Seong-Hyun Kim, Jae-Eun Jeong, 2019). However, as COVID-19 continues for a long time, it is expected that the problem behaviors of several infants and young children will increase based on anxiety, discomfort, and dissatisfaction with desires, and among them, problems related to emotion and sociality are expected to increase (Seo Young-sook, 2020). As such, in a situation where it is predicted that the problem behaviors of infants will increase due to the prolonged COVID-19, it is necessary to conduct studies on various variables that the context of an infectious disease affects the problem behaviors of infants. This is because, rather than a single factor having a major influence on children's problem behavior, various risk factors related to changes in family and social environment contexts accumulate and combine to have a significant negative effect. Furthermore, by early detection of variables that negatively affect children's mental health and problem behavior in various contexts, we will prevent and intervene in the present and future negative effects early to give resilience and adapt to a more adaptive school age. This is to make it possible (Ji Seong-ae & Kim Seong-hyun, 2013).

The enormous changes in adult life due to COVID-19 can further trigger problem behaviors in infants and young children, which in addition to the stress experienced by being confined at home, are directly affected by the stress of parents in living at home for a long period of time (Mochida et al., 2021). According to Salari, Hosseinian-Far, Jalali, Vaisi-Raygani et al. (2020), who performed a meta-analysis of COVID-19 related papers, 29.6% of the analyzed subjects experienced stress that interferes with their daily life, 33.7% experienced depression, and 31.9% experienced depression, reported experiencing anxiety, etc. Therefore, coping with stress caused by COVID-19 and mental health through campaigns, publicity, crisis counseling, etc., along with quarantine at the medical and clinical level, as well as psychological and daily life level

The need for prompt support for management is emerging (Kim Nam-soon, 2020). In particular, this stress is the most severe in families living with children, and among them, it is investigated that families with children under the age of 5 experience three times more stress than other families (Crew, 2020).

Although infants and young children are relatively less contagious than other age groups, short-term and long-term risks cannot be overlooked because they have a risk of hyper-inflammatory shock, brain growth, and high sensitivity to the environment (Hyeon-Jeong Joo, 2020).

In particular, early childhood education institutions are living in groups of infants and young children whose immune system is not complete, so efforts are required to support the health and safety of infants and toddlers, and concerns about infection are high (Kwon Hye-jin, 2021). Moreover, compared with the information that the infection rate of infants and young children is low in the early stage, the infection rate of infants and young children is also increasing after the 4th pandemic. This overall risk of infection causes parents to become more aware of the risk from the corona virus. Not only the risk of infection but also the difficulty of caring is one of the major causes of increasing the stress of families with infants and children in the COVID-19 situation. As Corona 19 continues, the number of cases where children are raised at home without sending them to an early childhood education institution is high at 73.3%, and emergency care is provided, but the satisfaction level is not high (Choi Yun-kyung, 2020). In actual families, one of the parents took a vacation when they were looking for a place to drop off their children or if there was no place to drop off their children (Joo Hae-ran & Han Ah-reum, 2021). Recently, mothers often perform multiple roles such as work at work, child rearing, and family care, and as a result, they experience greater difficulties and perceive high stress (Gye-sook Yoo, Susanna Joo, & Jong-woo Kim, 2020). Therefore, for many families, the COVID-19 pandemic situation is a challenging time, and 65% of parents of infants and toddlers are stressed and excessively worried during the shutdown period (Action for Children, 2020). In other words, in the COVID-19 situation, especially parents with infants and toddlers feel the fear of being infected with COVID-19, experience loneliness, isolation, economic difficulties, etc. In severe cases, problems such as anxiety and depression occur (Kim Eun-ha et al., 2021). How to further influence the problem behavior of infants.

As COVID-19 emerges as a new source of stress that threatens health, safety, economics and well-being worldwide, the relationship between personal and family-level stressors, inadequate parenting, and child maladjustment due to

COVID-19 has been studied. Attempts are being made to identify them (Brown, Doom, Lechuga-Peña, Watamura, & Koppels, 2020). In fact, stress, anxiety, depression, etc. in the current Corona 19 situation perceived by parents have a negative effect on various factors related to parenting, and as a result, the tendency to negative parenting, which is a major factor in problem behavior of children, is increasing. (Chung, Lanier, & Wong, 2020). Parents who have a high perception of stress and are prone to anxiety and depression are not responsive to their children's needs, interact in a negative way, use coercive and authoritarian disciplines, and in severe cases may develop into abuse (McPherson, Lewis, Lynn, Haskett, & Behrend, 2009). In the same vein, Sun, Singletary, Jiang, Justice, and Lin (2022)'s study conducted in the context of the corona pandemic found that parents' stress increased and they responded coldly, thus promoting problem behavior in infants and young children. In addition, when parental stress is high, even the same behavior tends to promote more problematic behaviors in children by perceiving more negative emotions and controlling children's behaviors due to anxiety (Mochida et al., 2021). In relation to this, parents of infants with high anxiety have affected their mental health, such as limiting contact with outsiders more than necessary, restricting outside activities, and obsessively obsessing over masks and hand sanitizers in a pandemic situation. Behavior that can lead to madness (Bartlett et al., 2020). Considering that there are differences in children's mental health problems depending on how parents respond and behave in various disaster situations (Cobham & McDermott, 2014), parents' perceptions in stressful situations such as infectious diseases It can affect the problem behavior of children.

The perception or coping ability that parents can control their own stress in uncontrollable stressful situations is a major factor in reducing children's stress and alleviating problem behavior (Li, Godinet, & Arnsberger, 2011). Therefore, it is necessary to examine the effect of mother's Corona 19 stress on infant's problem behavior.

As above, Corona 19 stress directly affects the problem behaviors of infants, but it can also affect the problem behaviors of infants by mediating parental parenting-related variables, especially parenting efficacy. Parenting efficacy is based on the self-efficacy theory as the parents' perception that they can fulfill their parenting roles perfectly and effectively (Teti & Gelfand, 1991). Parenting efficacy is an important factor that helps parents who are experiencing difficulties in parenting perform desirable parenting, and affects not only parental satisfaction, but also desirable parenting behavior and child development (Choi, 2005). In particular, parenting efficacy becomes more important when faced with unexpected situations or stress (Ji-Young Ahn, 2001) and is related to various stress stimuli in the surrounding environment perceived by parents (Yaman, Mesman, van Ijzendoorn, & Bakermans-Kranenburg, 2010). The current corona virus caused by a sudden stressful situation.

It can act as a major mediator in the situation. In relation to this, as parental stress increases and accumulates, anxiety increases and self-confidence decreases, resulting in a low sense of efficacy in overall parenting (Mikyung Cho, 2011). In particular, in the context of COVID-19, educational institutions are often closed, increasing the burden of play and education at home, and the absolute amount of parenting time has increased sharply compared to before, so parents are exposed to various stresses and anxiety. And can affect parental parenting efficacy (Brown et al., 2020). Accordingly, it can be predicted that stress caused by COVID-19 may affect mothers' parenting efficacy. In such a crisis situation, when parenting efficacy is high, they effectively cope with various needs of the environment, cope well with challenging situations, and manage their emotions well in stressful situations.

Negative parenting behavior due to more stress and anxiety (Weaver, Shaw, Dishion, & Wilson, 2008). In other words, it is related to the problem behavior of infants because they show different behaviors according to the level of parenting efficacy in stressful situations and have a decisive influence on the quality of parenting (Jones & Prinz, 2005). In the same vein, studies on the relationship between parenting efficacy and problem behavior (Jang Young-eun, 2016; Ardel & Eccles, 2001; Weaver et al., 2008) found that when the mother's parenting efficacy was high, the child's development was promoted. While parenting behavior is possible, if parenting efficacy is low, consistent parenting cannot be carried out because of lack of confidence in one's own child-rearing, and it is difficult to set limits, which further promotes problematic behavior of children.

In summary, due to the prolonged COVID-19 outbreak, many families perceive high stress and, in particular, perceive higher stress and burden in the increasing number of mothers and childrearing. Such stress can directly affect problem behavior by negatively affecting stable relationships with children, and on the other hand, it can affect problem behavior by impairing parenting efficacy due to increased parenting burden and stress. When there was a crisis caused by the spread of the Middle East Respiratory Syndrome epidemic in 2015, it would have been more helpful to prepare countermeasures during the COVID-19 period if studies related to problematic behaviors of infants, family, and parenting factors had been sufficiently conducted (Mijeong Jin et al., 2020). However, few related studies have been conducted. In addition, even under the COVID-19 situation, studies on psychological variables such as parental stress and parenting efficacy are scarcely conducted.

However, in a pandemic situation, parents of infants and toddlers experience high stress compared to other groups,

and the frequency of conflicts between families in raising children is also high (Kim Seong-hyeon, 2021; Crew, 2020). In addition, in the context of a continuing pandemic, parenting difficulties cause difficulties for parents and children to the extent of escalating to post-traumatic stress disorder (Brooks et al., 2020). Basically, the development of an infant is a stable relationship with the caregiver in the infant's daily routine inside and outside the home.

Influenced by interaction and parenting (Bronfenbrenner & Morris, 2006). Therefore, it is important to examine the factors affecting parents' parenting of the pandemic situation itself, which causes changes and difficulties in the important context of adults, along with the routines of infants and toddlers. However, studies related to COVID-19 related parenting are conducted using only existing parenting-related tools and variables under the premise of the corona situation rather than measuring the direct stress of the Corona 19 situation. There are limitations to viewing. Because Corona 19 stress is highly related to parenting stress, apathetic parenting behavior, and parenting efficacy, which are known as the most important factors for the development of infants and young children (Seonghyun Kim, 2021; Mochida et al., 2021; Sun et al., 2022) Exploring whether direct stress perceived by parents due to COVID-19 affects the negative development of infants and young children as well as the effect on parenting efficacy I think you can suggest. Therefore, in this study, by conducting a study on stress, parenting efficacy, and problem behavior in the Corona 19 situation, the effect of the stress situation on the problem behavior of infants in an infectious disease situation was analyzed, and measures against various infectious diseases that may occur in the future. We aim to provide a basis for the research questions to achieve this research purpose are selected as follows, and the related basic research model is shown in Figure 1 below. In this study, as previously suggested, a partial mediation model was established that the mother's COVID-19 stress directly affects problem behaviors, but on the other hand, it mediates parenting efficacy to affect problem behaviors.

Research Question 1. What is the relationship between mother's COVID-19 stress, parenting efficacy, and problem behavior of infants?

Research question 2. Is there a partial mediating effect of parenting efficacy in the effect of mother's COVID-19 stress on infant's problem behavior?

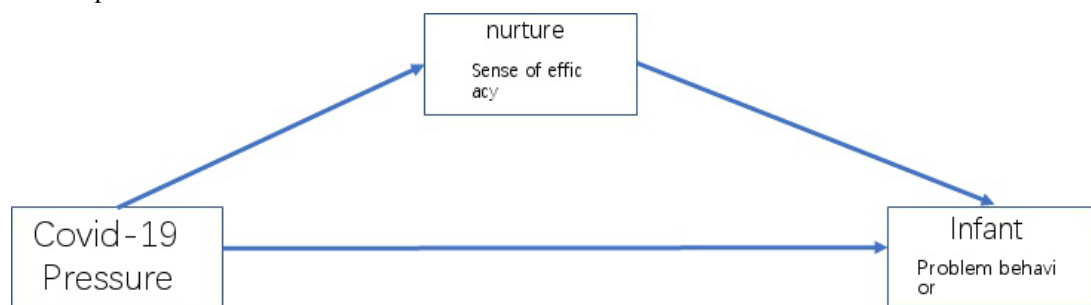


Figure 1. Basic research model

2. Research method

2.1 Research subject

The subjects of this study were 204 mothers raising infants and toddlers. The population of this study was the mothers raising infancy children, and convenience sampling was performed. Table 1 below shows the general background of the study subjects.

Table 1. General background of study subjects

division	Contents	frequency	%
mother age	30's or younger	119	58.3
	40's	81	39.7
	over 50	4	2.0
motherhood	less than high school	14	6.9
	graduate from college	53	26.0
	4-year graduation	92	45.1

	graduate school	45	22.1
Children gender	other	95	46.6
	female	109	53.4
Institution Type	Day care Center	69	33.8
	kindergarden	126	61.8
	Etc	9	4.4
yearly income	less than 30 million won	16	7.8
	30 million to 40 million won	27	13.2
	40 million won to 50 million won	34	16.7
	50 million won or more	127	62.3
child age	3 years old	54	26.5
	4 years old	70	34.3
	5 years old	80	39.2
	all		204

2.2 Research procedure and data collection

2.2.1 Corona 19 stress test tool

In this study, the 'COVID-19 Stress Scale for Korean People: CSSK' developed by Eunha Kim et al. was used. This scale measures the corona-related stress of general Korean adults and consists of 21 items of 3 sub-factors. First, 'fear of infection' (9 items) consists of two types of fear of infection yourself and questions related to fear that others may become infected with COVID-19 because of yourself. The next factor is 'difficulty due to social distancing' (6 items). This factor consists of psychological, social, and economic factors that may be experienced as social distancing is prolonged. Lastly, 'Anger towards others' (6 items) is about the expression of anger or hatred that occurs frequently in the context of the spread of infectious diseases, and is related to Korean culture or context (social Banned the spread of Corona 19 due to ceremonies and gatherings).

It consists of English and Korean sentences. This test consists of a 5-point Likert scale, and the score ranges from 21 to 105. Also, the higher the overall score, the higher the perceived stress related to COVID-19. Reliability in this study was 'fear of infection' 0.94, 'difficulty due to social distancing' 0.84, 'anger towards others' 0.86, and 0.91 overall.

2.2.2 Mother's Parenting Efficacy Scale

Hyeon and Baek Ji-hee (2011) measured this with the Korean version of the Parenting Efficacy Scale (K-EGSCP), which was validated for Korean mothers of infants and toddlers. The K-EGSCP is a scale that can measure the cognitive structure related to parenting efficacy by domain of parents of children aged 0-6 according to the parenting situation. The components of the scale are parenting by domain

It consists of a total of 29 items with 5 factors of efficacy (affection, daily system organization, discipline, play, education) and 2 factors (parental responsibility, result control) related to the cognitive structure. In this study, 22 items of parenting efficacy factors by domain were used to measure the mother's parenting efficacy. The items for each sub-factor consisted of 5 items of affectional efficacy (e.g., my child felt very loved by me), 4 items of efficacy of daily system organization (e.g., I was unable to get my child to carry out schedules on a regular basis (inverse item).), discipline efficacy 5 items (e.g., despite my efforts, I find it difficult to influence my child's behavior (inverse), play efficacy 5 items (e.g., I can actively participate in play with my child), consists of three items of educational efficacy (e.g., when I try to explain something to my child, it is difficult to find an appropriate level of method (inverse item)). Affection by sub-factor .80, daily system organization 0.82, discipline 0.75, play 0.89, education.

2.2.3 Infant's problem behavior test tool

In this study, as a tool for testing infants' problem behavior, Su-Kyung Suh (1993) used the PBQ (The Preschool Behavior Questionnaire) developed by Behar and Stringfield (1974). This test tool was developed to evaluate the maladaptive behavior of infants and young children. The sub-factors of this scale were hostile-aggression (10 items), which

measures aggressive behaviors that include content such as quarreling with peers or breaking objects, and a lot of worrying, including content such as being always concerned. 3 sub-factors of anxiety-anxiety (8 items), hyperactivity-distraction (5 items) that measure attention-related problems, such as restlessness or short attention span. The total item consists of 23 items. This scale consists of a 5-point scale ranging from no problem at all (1 point) to very problematic (5 points). Reliability in this study is hostility-aggression 0.93, worry-anxiety 0.91, hyperactivity-distraction 0.87, Overall, it was 0.92.

2.3 Data collection procedure

For 6 weeks from May 1 to June 15, 2021, data were collected from 201 mothers of infants in 10 kindergartens and daycare centers located in S and K provinces. The data collection procedure of this study was conducted in online and offline format only after asking the head of the institution whether the institution wished to participate in the research. The researcher directly visits daycare centers and kindergartens, who consented to the research, by making a questionnaire composed of Google questionnaires and written questionnaires to examine the guidelines for the research purpose, Corona 19 stress, parenting efficacy, and problem behaviors of infants. Thus, it was possible to send it to the family in a home correspondence, and a link to the Google questionnaire was sent to the mothers in the form of a URL through the homeroom teacher so that the mothers could participate in the way they wanted. The participation of mothers was allowed to be made voluntarily, and it was continuously suggested that there would be no disadvantages due to non-participation in the survey. A total of 150 questionnaires were distributed and 117 copies were recovered, indicating a recovery rate of 78%, and a total of 99 copies of the Google questionnaire were recovered. A total of 216 copies of the written questionnaire and Google questionnaire were collected. A total of 204 copies were analyzed except for 12 copies of the responses with more than 5 questions or insincere responses.

2.4 Data Analysis

The data collected in this study were analyzed using the SPSS 21.0 program. First, the Cronbach α coefficient was derived to calculate the reliability of research tools. Next, the Pearson Moment Correlation Number was calculated to examine the relationship between COVID-19 stress, mother's parenting efficacy, and infant's problem behavior. Finally, PROCESS proposed by Hayes (2013) to calculate the mediating effect of parenting efficacy in the effects of COVID-19 stress on infant problem behavior.

Model 4 of macro was used, and 5,000 bootstrap samples were specified and the confidence interval was set to 95% for analysis.

3. Results

3.1 Relationship between mother's Corona 19 stress, parenting efficacy, and infant's problem behavior

The results of analyzing the relationship between the mother's COVID-19 stress, parenting efficacy, and the infant's problem behavior are presented in Table 2 below. As a result of examining skewness and kurtosis to confirm the assumption of normal distribution before correlation analysis, the skewness was -1.33 to 2.70, which did not exceed the absolute value of 3, and the kurtosis was .23 to 5.74, which did not exceed the absolute value of 7, indicating a normal distribution. Confirmed to be assumed. As shown in Table 2, there was a significant positive correlation ($r=.24$, $p<.01$) between the COVID-19 stress, the predictor variable, and the overall problem behavior, the dependent variable. Also full

Fear of infection ($r=.20$, $p<.01$), a sub-factor of problem behavior and COVID-19 stress, fear of social distancing ($r=.15$, $p<.05$), anger at others ($r=.23$, $p<.01$) showed a significant positive correlation.

Next, there was a significant negative correlation between the dependent variable, problem behavior, and the mediating variable, parenting efficacy ($r=-.18$, $p<.05$). In addition, the sub-factors of parenting efficacy were discipline efficacy ($r=-.61$, $p<.01$), affection efficacy ($r=-.15$, $p<.05$), and daily system organization efficacy ($r=-.16$, $p<.05$). There was a significant correlation between educational efficacy ($r=-.16$, $p<.05$). There was no significant correlation with play efficacy ($r=-.09$, $p>.05$).

Finally, there was a significant negative correlation between mother's COVID-19 stress, a predictor variable, and parenting efficacy, a mediating variable ($r=-.37$, $p<.01$). In addition, the sub-factors of parenting efficacy were play efficacy ($r=-.17$, $p<.05$), affection efficacy ($r=-.29$, $p<.01$), and daily system organization efficacy ($r=-.29$, $p<.01$). There was a significant correlation between educational efficacy ($r=-.38$, $p<.01$). There was no significant correlation with the training efficacy ($r=.01$, $p>.05$).

Table 2. Correlation analysis result (N=204)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1													
2	.51**	1												
3	.54**	.42**	1											
4	.89**	.76**	.78**	1										
5	.01	-.02	.05	.01	1									
6	-.15*	-.19**	-.09	-.17*	.19**	1								
7	-.21**	-.31**	-.20**	-.29**	.21**	.74**	1							
8	-.23**	-.30**	-.19**	-.29**	.22**	.40**	.55**	1						
9	-.34**	-.37**	-.21**	-.38**	.26**	.48**	.56**	.67**	1					
10	-.30**	-.37**	-.24**	-.37**	.39**	.81**	.86**	.76**	.78**	1				
11	.21**	.12	.23**	.23**	-.56**	-.06	-.10	-.13	-.13	-.14	1			
12	.21**	.19**	.23**	.26**	-.55**	-.08	-.15*	-.15*	-.16*	-.16*	.82**	1		
13	.16*	.12	.18**	.19**	-.62**	-.13	-.16*	-.18**	-.17*	-.21**	.87**	.83*	1	
14	.20**	.15*	.23**	.24**	-.61**	-.09	-.15*	-.16*	-.16*	-.18*	.95**	.93*	.95**	1
M	3.57	2.84	3.96	3.47	3.80	3.61	3.99	3.85	3.85	3.82	1.65	1.90	1.99	1.84
SD	.85	.83	.85	.69	.84	.89	.77	.80	.81	.67	.67	.69	.70	.65
skewness	-.29	.15	-1.11	-.65	-.60	-.56	-1.33	-.71	-.63	-.87	2.70	1.97	1.51	2.34
kurtosis	.32	.23	1.49	1.887	.860	.18	3.16	1.06	1.27	3.22	5.74	4.40	3.74	5.10

**p<.01, *p<.05

Notes: 1. Fear of infection, 2. Fear of social distancing, 3. Anger towards others, 4. Total COVID-19 stress, 5. Efficacy of discipline, 6. Efficacy of play, 7. Efficacy of affection, 8. Daily life. Organizational efficacy, 9. Educational efficacy, 10. Overall parenting efficacy, 11. Hostility-aggression, 12. Worry-anxiety, 13. Hyperactivity-distraction 14. Overall problem behavior.

3.2 The Mediating Effect of Parenting Efficacy on the Effect of Mother's Corona 19 Stress on Infant's Problem Behavior

The results of examining the mediating effect of parenting efficacy in the effect of mother's COVID-19 stress on infants' problem behavior are presented in Table 3 and Figure 2 below.

Model 4 of the SPSS PROCESS macro proposed by Hayes (2013) was applied to verify the mediating effect of parenting efficacy in the effect of mother's Corona 19 stress on the infant's problem behavior. After designating 5,000 bootstrap samples, the confidence interval was It was analyzed by setting it to 95%. As shown in Table 3 and Figure 1, the mother's Corona 19 stress, a predictor variable, had a significant negative effect on the mother's parenting efficacy as a parameter ($\beta = -.353$, $p < .001$) and infants as the dependent variable. The problem behavior has parameters

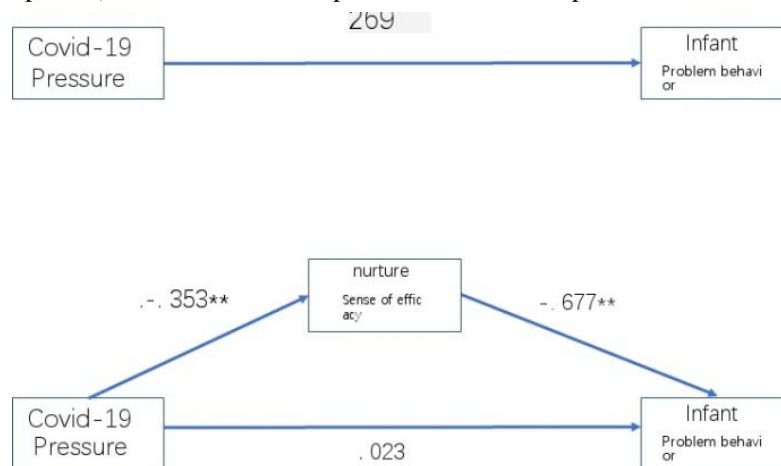


Figure 2. Pathway Model of Corona 19 Stress on Infant Problem Behavior.

When the number was not included, it had a significant positive effect ($\beta=.26, p<.001$), but when the parameter was included, it had no significant effect ($\beta=.023, p>.05$). In addition, parenting efficacy, a parameter, had a significant negative effect on the problem behavior of infants ($\beta=-.697, p<.001$). Also, the whole model was $R^2=52.51$, which was found to explain 52.51% of the total.

On the other hand, the total effect of the path between infant problem behaviors in Corona 19 stress was $\beta = .269$ ($p < .001$) but as a parameter, parenting efficacy, was input the total effect was a direct effect $\beta = .023$ ($p > .05$). decreased. The fact that the mother's Corona 19 stress has a significant effect on parenting efficacy, that the parenting efficacy affects the problem behavior of the infant, and that the total effect of the pathway between the Corona 19 stress and the infant problem behavior is greater than the direct effect means it works. In addition, since the direct path in which the predictor variable affects the dependent variable was not significant, it can be understood that the full mediating effect occurred. Because the mediating effect appeared, we tried to verify the indirect effect due to the mediating variable. As a result of verifying the indirect effect of parenting efficacy using bootstrapping, the lower limit of the indirect effect was .056 and the upper limit was .163, so there was no zero between the upper and lower limits. Therefore, the mediating effect was significant.

Table 3. Mediating Effect of Parenting Efficacy in the Effects of Corona 19 Stress on Problem Behavior of Infants (N=204)

step	variable	β	se	t	LLCI	ULCI	F
Parametric model (dependent variable: parenting efficacy)							
	a constant	5.039	.22	22.60***	4.600	5.479	
1	corona stress	-.353	.06	-5.60***	-.477	-.229	31.386***
Dependent variable model (dependent variable: infant problem behavior)							
	a constant	4.120	.41	10.09***	3.314	4.925	
2	corona stress	.023	.05	.479	-.073	.120	111.136***
	Parenting Efficacy	-.697	.05	-13.68***	-.797	-.597	

*** $p<.001$

Table 4. Mediation Effect Verification

effect	β	se	LLCI	ULCI
indirect effect	.106	.03	.056	.163

4. Discussion and Conclusion

The purpose of this study is to examine the relationship between mothers' Corona 19 stress, parenting efficacy, and infant's problem behavior, and to examine the mediating effect of parenting efficacy on the effect of mother's Corona 19 stress on infant's problem behavior. According to the research question, the results of this study will be discussed as follows.

First, there was a significant positive correlation between COVID-19 stress and problem behavior. This means that COVID-19 stress can affect children's problem behaviors, and conversely, children's problem behaviors can affect COVID-19 stress. The results of this study support the claims of previous researchers (Brown et al., 2020; Chung et al., 2020) who argued about the relationship between stress related to infectious diseases and problem behaviors of children. In the COVID-19 situation, all family members are exposed to stress, including not only parents but also infants experiencing high stress (Mochida et al., 2021). Such stress can increase conflicts between family members and increase the stress and problem behaviors of children who experience them. In addition, Kim Eun-ha et al. (2021) reported that the higher the stress caused by COVID-19, the more maladaptive, such as consuming more alcohol or, in extreme cases, suicide. In particular, in the COVID-19 situation, the frequency of drinking at home rather than dinner parties increases due to social distancing, and conflicts between families increase as family relationships change (Mijeong Jin et al., 2020). Furthermore, strong hostility to those who are suffering together may be expressed as others around them do not follow the quarantine rules despite their well-followed quarantine rules to end Corona 19. As such, when the level of stress in daily life of parents increases and hostility and aggression increase, the tendency to coercively parenting appears, which can cause maladjustment in children (Beckerman, van Berkel, Mesman, & Alink, 2017). On the other hand,

the opposite side is also possible. The higher the problem behavior of the infant, the more the parents will feel the stress caused by Corona 19.

When a child exhibits problem behavior, parents experience depression or anxiety and tend to perceive stress as high (Brown et al., 2020). In the context of COVID-19, parents perceive that children's aggressive behaviors such as fear, carelessness, and aggression have increased even more (Spinelli, Lionetti, Setti & Fasolo, 2020). In addition, in a situation where the 'stay at home' time increases and parents are responsible for the overall care of infants and toddlers, such as childcare, education, and play, the problem behavior of infants seems to increase the stress of Corona 19 by making the mother more aware of the responsibility. On the other hand, worry-anxiety among the sub-domains of problem behavior was found to be correlated with fear caused by social distancing, a sub-factor of COVID-19 stress, unlike hostility-aggression and hyperactivity-distraction. Fear caused by social distancing refers to the anxiety and economic difficulties that arise as social distancing is prolonged (Eunha Kim et al., 2021).

Next, a negative correlation was found between the predictive variable, COVID-19 stress, and the mediating variable, parenting efficacy. The results of this study are consistent with previous studies (Jiyoung Ahn, 2001; Mikyung Cho, 2011; Yaman et al., 2010) claiming the relationship between stress and parenting efficacy. Uncontrollable stress reduces the parent's sense of efficacy as a parent who thinks they can perform their role appropriately. Conversely, if the sense of efficacy as a parent is low, it may be a factor in perceiving the stress of COVID-19 more highly. As parents with low parenting efficacy did not cope with stress in an appropriate way and accepted the development and behavior of infants and young children more negatively (Weaver et al., 2008), the stress of infants in the stressful situation of COVID-19 became more severe, may act as a factor for high perception of When looking at each sub-area, there was no significant correlation between the effectiveness of discipline and the COVID-19 stress. Discipline efficacy refers to recognizing that children's behaviors can be changed according to their own efforts (Ji-Hyun Sung, Baek, Baek Jihee, 2011). Actual disciplinary efficacy seems to be relatively less affected by stressful situations because it is formed within a system that is consistent and continuous irrespective of the situation.

Next, there was a significant negative correlation between parenting efficacy and infant problem behavior. The results of this study are consistent with previous studies (Yeong-eun Jang, 2016; Ardel & Eccles, 2001; Weaver et al., 2008) that revealed a negative relationship between parenting efficacy and problem behavior. Parenting efficacy of parents is a decisive factor influencing parenting behavior and can be a key in determining problem behaviors of infants (Ardelt & Eccles, 2001). Conversely, many of the parents whose children exhibit problematic behaviors perceive that their children will not change no matter how hard they try, so they become frustrated, experience depression and anxiety, and ultimately have low parenting efficacy (Hong & Liu, 2021). On the other hand, in this study, hostile-aggressive problem behavior did not show a significant correlation with the sub-domains except for mother's parenting efficacy and discipline efficacy. Ji Sung-ae and Kim Seong-hyeon (2013) argued that more cognitive and temperamental factors play a major role in the hostile-aggressive problem behavior of infants. It was argued that innate factors have a major influence on aggression behavior, but hostility-aggression does not appear to have any relationship with parenting efficacy. Also, there was a high correlation of .5 or more with all sub-factors of infant problem behavior, and the results of this study confirm that the problem behavior of infants can be reduced if consistent discipline is provided.

Next, as a result of examining the mediating effect of mother's parenting efficacy in the effect of mother's COVID-19 stress on infant problem behavior, the mediating effect of parenting efficacy was found. Although this study result is not a study on the stress of the Corona 19 situation, it indirectly supports the study result of Yaman et al. In addition, in this study, the nurturing effect

The mediating effect of competence was fully mediated. This means that the mother's COVID-19 stress does not directly affect the child's problem behavior, but rather increases the child's problem behavior by negatively affecting the parenting efficacy. Parental adaptation stress to environmental changes negatively affects parenting efficacy in various ways (Crew, 2020). In the same vein, since parenting efficacy is related to stress and social support, when social support is low and stress is high, parenting efficacy is low (Sukjae Shin, 1997). As the COVID-19 outbreak continues for a long time, parents, especially mothers, have become a task that has to be solved with the help of family members, especially mothers at work, learning at school, and caring at childcare centers (Mijeong Jin et al., 2020). In particular, as early childhood education institutions are frequently closed, children are deprived of opportunities to learn, as well as lack of interaction with peers and teachers, impeding overall development opportunities and increasing problem behavior (Spinelli et al., 2020). In addition, in this situation, the space for children to move freely and perform activities is limited, and the ability of parents to overcome these aspects is more important than anything else, so parental efficacy is more important.

Furthermore, social control such as social distancing acts as a burden on parents above all else and increases the possibility of negative emotional expression in the form of triggering problem behavior in children (Kim Seong-hyun,

2021). Repeated experiences of these negative emotions are factors that hinder the confidence and confidence of parents in their own upbringing. In addition, in the case of families with strong emotional ties, it is possible that the increase in family time due to social distancing helped form a positive parent-child relationship. They are more likely to perceive difficulties as high (Mijeong Jin et al., 2020). In other words, families who effectively manage conflict and are highly related perceive less stress even in the same situation, while those who do not experience more stress.

Conflict and stress seem to be factors that lower the mother's parenting efficacy. In summary, when stress due to COVID-19 is high, parents' sense of parenting efficacy may be lowered.

On the other hand, the lowered parenting efficacy due to the stress of COVID-19 is a factor that increases the problem behavior of infants. Studies on the relationship between parenting efficacy and children's problem behavior have been well established (Dishion & Patterson, 2006; Weaver et al., 2008). The above researchers argue that the theoretical and empirical evidence of parenting efficacy is related to the dimension of parenting behavior, and that this parenting behavior has a major relevance to problem behavior during infancy. Parents with low parenting efficacy, based on deficiencies in positive parenting practices, such as lack of skills and discipline to manage children, inconsistency in child supervision, positive parental involvement, and decreased compassion (Colalillo & Johnston, 2016; Hamovitch, Acri, & Bornheimer, 2019). In the same vein, parents with high parenting efficacy strive to know and implement effective parenting techniques suitable for situations in which their children are having problems, whereas parents with low parenting efficacy have more difficulty in coping effectively in the same situation (Anderson, 2006). Similarly, Sanders and Woolley (2005) noted that the higher the parenting efficacy, the less likely they are to show overreaction, harsh parenting, and inconsistent parenting behavior. In addition, parents with high parenting efficacy reduce the risk of problem behavior because they interact smoothly with their children by appropriately using personal and social resources to form a sensitive and harmonious relationship with the infant, even if the child's temperament is difficult (Teti & Gelfand, 1991). The results of this study suggest that, due to the high stress of Corona 19, personal and social resources cannot be used properly, and parenting efficacy is lowered due to anxiety, etc. In particular, in this study, it was found that COVID-19 stress did not directly affect the problem behavior of infants, but rather had an effect on parenting efficacy as a medium. This will effectively reduce the problem behaviors of infants in infectious disease situations in the future.

This suggests that programs that can enhance parenting efficacy in stressful situations should be established in order to solve the problem. As a limitation of this study and suggestions for follow-up studies, first, this study only targeted infants. However, as infants and young children require different types of problem behavior and parenting, follow-up studies need to deal with problematic situations that may occur in a wider range of age groups, including infants. Second, although this study mainly looked at parenting efficacy as a mediating variable, parenting-related variables affecting infant problem behavior are diverse, such as parenting behavior and parenting stress. It is necessary to look at how it works dynamically. Lastly, since changes in the home environment can affect men and women in different ways in the COVID-19 situation, it is necessary to compare the paths of mothers and fathers in follow-up studies. Lastly, since this study approached the relationship between the observed variables, the structural relationship between the latent variables will also be analyzed in the follow-up study.

References

- Action For Children. (2020). *One in three parents 'out of their depth' as children struggle with pandemic fallout*. Retrieved November 11, 2021, from <https://www.actionforchildren.org.uk/news-and-blogs/press-releases/2020/july/one-in-three-parents-out-of-their-depth-as-child-ren-struggle-with-pandemic-fallout/>.
- Anderson, O. A. (2006). *Linking work stress, parental self-efficacy, ineffective parenting, and youth problem behavior*. Doctoral dissertations, The University of Tennessee.
- Ardelt, M., & Eccles, J. S. (2001). Effects of mothers' parental efficacy beliefs and promotive parenting strategies on inner-city youth. *Journal of Family issues*, 22(8), 944-972.
- Bartlett, J.D., Griffin, J., & Thomson, D. (2020). *Resources for supporting children's emotional well-being during the COVID-19 pandemic*. Child trends. Retrieved March 19, 2020, from <https://www.childtrends.org>.
- Beckerman, M., vanBerkel, S.R., Mesman, J., & Alink, L. R. (2017). The role of negative parental attributions in the associations between daily stressors, maltreatment history, and harsh and abusive discipline. *Child abuse & neglect*, 64, 109-116.
- Behar, L., & Stringfield, S. (1974). A behavior rating scale for the preschool child. *Developmental psychology*, 10(5), 601-610.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In *handbook of child psychology, volume I. Theoretical models of human development*. <https://doi.org/10.1002/9780470147658.chpsy0114>.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet*, 395(10227), 912-920.

- Brown, S. M., Doom, J. R., Lechuga-Peña, S., Watamura, S. E., & Koppels, T. (2020). Stress and parenting during the global COVID-19 pandemic. *Child abuse & neglect, 110*, 1-14.
- Choi Sung-Sung. (2005). A study on mothers' parenting efficacy. *Korean family Journal of the Korean Society of Science and Technology, 43*(4), 111-123.
- Choi Yun-kyung. (2020). Checking the response system in the field of childcare for COVID-19: Current status of childcare and future tasks due to prolonged closure of daycare centers and kindergartens. Seoul: Research Institute for Childcare Policy.
- Chung, G., Lanier, P., & Wong, P. Y. J. (2020). Mediating effects of parental stress on harsh parenting and parent-child relationship during coronavirus (COVID-19) pandemic in Singapore. *Journal of Family Violence, 1-12*.
- Cobham, V. E., & McDermott, B. (2014). Perceived parenting change and child posttraumatic stress following a natural disaster. *Journal of child and adolescent psychopharmacology, 24*(1), 18-23.
- Colalillo, S., & Johnston, C. (2016). Parenting cognition and affective outcomes following parent management training: A systematic review. *Clinical Child and Family Psychology Review, 19*(3), 216-235.
- Crew, M. (2020). *Literature Review on the Impact of COVID-19 on Families, and Implications for the Home Learning Environment*. A National Literacy Trust Research Report. National Literacy Trust.
- Dishion, T. J., & Patterson, G. R. (2006). *The development and ecology of antisocial behavior in children and adolescents*. John Wiley & Sons, Inc.
- Eunha Kim, Soyoung Park, Yeji Lee, Hyeon Park. (2021). for Koreans Development and Validation of a COVID-19 (COVID-19) Stress Scale. *Counseling Studies, 22*(1), 141-163.
- Giannopulu, I., Escolano, S., Cusin, F., Citeau, H., & Dellatolas, G. (2008). Teachers' reporting of behavioural problems and cognitive-academic performances in children aged 5-7 years. *British Journal of Educational Psychology, 78*(1), 127-147.
- Gye-Sook Yoo, Susanna Joo, and Jong-Woo Kim. (2020). Coronavirus infection Stress experiences of married adult men and women due to -19: Focusing on the intersection of gender and class. *Women's Studies, 106*, 5-32.
- Hae-ran Joo, Ah-reum Han. (2021). A study on the emotional experiences of mothers of infancy who use urgent care at daycare centers during COVID-19. *Research. Open Early Childhood Education Research, 26*(1), 209-227.
- Hyejin Kwon. (2021). Child health care duties and experience of childcare teachers responding to COVID-19 infection. *Children's Media Research, 20*(1), 57-74.
- Hyeon-Jeong Joo. (2020). Analysis of issues related to early childhood education institutions in the COVID-19 pandemic. *Research on Learner-Centered Curriculum and Education, 20*(22), 1085-1111.
- Jang Young-eun. (2016). The relationship between maternal self-efficacy, depression and parenting stress and problem behaviors of infants. *Family and Culture, 28*, 1-29.
- Ji Seong-ae, Kim Seong-hyun. (2013). Analysis of the relationship between children's drawing representation ability, attention deficit and multiple intelligences. *Early Childhood Education Research, 33*(5), 139-160.
- Ji-Hyeon Seong, Ji-Hee Baek. (2011). Korean Version of Parenting Efficacy Scale (K-EGSCP). A feasibility study in: domain-specific parenting efficacy and related cognitive structure scales. *Journal of the Korean Psychological Association: Development, 24*(4), 135-150.
- Jiyoung Ahn. (2001). Effect of parenting beliefs, efficacy, and stress on parenting behavior of mothers with children aged 2-3 years. Ewha Womans University graduate school doctoral thesis.
- Kim Nam-soon. (2020). With What is necessary health care research in the era of Corona?. *Health and Social Research, 40*(3), 5-9. Korean Society for Early Childhood Education and Childcare Welfare 2020 Fall Academic College Session Resources, 9-29.
- Mi-jung Jin, Mi-ae Seong, Seo-hee Son, Jae-eon Yoo, Jae-rim Lee, Young-eun Jang. (2020). Changes in family life and family relationships and stress due to the spread of COVID-19. *Family and Environment Research, 58*(3), 447-461.
- Mikyung Cho. (2011). The Effect of Family Resilience Perceived by Parents of Preschool Children with Disabilities on Parenting Efficacy: Mediating Effect of Parenting Stress centered on the fruit. *Social Science Research, 27*(1), 323-349.
- Seo Young-sook. (2020). Post-COVID-19 and Early Childhood Education and Childcare Prospects.
- Seonghyeon Kim, Jaeun Jeong. (2019). The effect of parents' parenting attitudes and discipline methods on problem behaviors of their infancy children perceived by parents. *Open Education Research, 27*(4), 207-228.
- Seonghyeon Kim. (2021). A Study on Parental Stress in the Age of Corona 19, *Safety Culture Study, 13*, 375-390.
- Sukjae Shin. (1997). The effects of mother's parenting stress, social support and parental efficacy on parenting behavior. Yonsei University graduate school doctoral thesis.
- Su-Kyung Suh. (1993). A study on the behavior, temperament and sex differences of infants. Ewha Womans University graduate school master's thesis.