

Influence of parenting role sharing, parenting stress, and happiness on warm parenting behavior in mothers of children aged 6 years: an analysis using data from the seventh panel study on Korean children

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Purpose: The aim of this study was to examine the relationships among parenting role sharing, parenting stress, happiness, and parenting behavior of mothers with 6-year-old children. **Methods:** This study used data from the seventh Panel Study of Korean Children, which began collecting longitudinal data on a sample of newborn households nationwide in 2008 and will continue yearly until 2027. The participants were 1,560 mothers of children aged 6 years. We conducted statistical analyses using descriptive statistics, the t-test, analysis of variance, Pearson correlation coefficients, and stepwise multiple regression. **Results:** The mean age of the mothers was 36.8 ± 3.7 years. The mothers' perceived parenting role sharing ($r=.07, p=.007$), parenting stress ($r=-.54, p<.001$), and happiness ($r=.38, p<.001$) were significantly correlated with warm parenting behavior. Stepwise multiple regression analysis revealed that parenting stress ($\beta=-.47, p<.001$), happiness ($\beta=.15, p<.001$), and parenting role sharing ($\beta=.11, p<.001$) were significant predictors for warm parenting behavior by mothers. **Conclusion:** It is essential to reduce mothers' stress and increase their positive emotions (happiness). Fathers should actively share parenting roles in raising children to enhance mothers' warm parenting behavior.

Key words: Mothers; Parenting; Psychological stress; Happiness

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INTRODUCTION

The nuclear family, centered on married couples, has been the most common family type in Korea in recent years. In the past, married couples who belonged to extended families raised their children with the help of grandparents. However, in modern society, the burden of parenting is increasing as couples often must handle all the parenting of young children. In particular, despite the increase in the number of dual-income couples [1], 91.3% of the primary caregivers are women who raise their children at home, whether the mother is employed or not [1]. The consequent increase in the parenting burden for the mother as the primary caregiver exacerbates parenting stress and is likely to affect the mother's parenting behavior negatively [2].

The parenting behavior of mothers is an essential factor in-

fluencing their children's growth and development. Parenting behaviors are classified as warm parenting behavior and controlling parenting behavior [3-5]. A mother's warm parenting behavior positively affects the child's social development [6], whereas controlling parenting behavior leads to problematic behaviors in the child and negatively affects their social development [4,6].

Six-year-old children transition from preschool to the school-age period, a critical time when children experience rapid cognitive, social, and emotional development [7]. This transition is affected by the attitude and behavior of mothers as the primary caregivers [6]. A high parenting burden on mothers leads to parenting stress, with inconsistent parenting attitudes and negative parenting behaviors [4,8], which can increase children's externalized and internalized problem behaviors [4]. Problem behaviors formed in early childhood can

negatively affect peer relationships, social development, and social adaptability [4,6]. Therefore, it is necessary to examine mothers' parenting behavior as an important variable in children's social development, and for fathers to support mothers' positive parenting behaviors by sharing in the parenting responsibilities.

Previous studies found that mothers' parenting role sharing was affected by the degree of fathers' parenting role sharing and that, as fathers' parenting role increased and mothers' parenting role decreased, mothers' parenting stress decreased [9-11]. In particular, a study revealed that mothers' parenting stress was significantly affected by their perceived share of the parenting role [12]. Most studies have focused on parenting role sharing and parenting stress for married couples, while few studies have focused on parenting role sharing and parenting stress for mothers as the primary caregivers.

Parenting stress refers to the stress experienced while raising a child, and it affects the parenting behavior of the caregiver [3]. Stronger positive emotions of happiness among mothers are associated with lower levels of parenting stress [13]. Furthermore, a study established that mothers show warm and supportive parenting attitudes in raising children [13]. Thus, parenting stress and happiness are important psychological factors that affect mothers' parenting behavior.

Previous studies have reported that the parenting behavior of mothers is related to parenting role sharing [14], parenting stress [2,12-14], and happiness [13,15]. However, previous studies that considered the relationships of parenting-related variables primarily focused on negative emotions such as parenting stress. We found no studies exploring the integrated relationships of both negative emotions (e.g., parenting stress) and positive emotions (e.g., happiness) with the influence of parenting role sharing on the warm parenting behaviors of mothers. As primary caregivers strongly influence children's behavior, it is necessary to identify the factors affecting mothers' parental behavior.

This study investigated the relationships among parenting role sharing, parenting stress, happiness, and warm parenting behavior as perceived by mothers of 6-year-old children. Furthermore, we aimed to contribute to the development of nursing interventions that promote desirable parenting behavior by identifying factors that influence mothers' warm parenting behavior.

METHODS

Ethics statement: This study was approved by the Institutional Review Board of Seoul National University (No. E2109/001-003).

1. Study Design

This cross-sectional study was designed to identify factors influencing the warm parenting behavior of mothers of 6-year-old children by analyzing secondary data from the seventh Panel Study of Korean Children (PSKC) [16].

2. Data and Study Participants

This study used data from the seventh PSKC, which collects longitudinal data on a sample of 2,150 newborn households nationwide, beginning in 2008 and continuing every year until 2027. The 11th survey was completed in 2018. The anonymity of the PSKC data is guaranteed, and the data are freely available to researchers through the public open data service [16].

The PSKC examines children's growth and developmental characteristics, parenting, and parenting support. The seventh panel data examined variables related to parenting [16]. The seventh survey period occurred when the children turned 6 years old, a critical period for the cognitive, social, and emotional development of a child [7]. Since a mother's parenting behavior during this period can affect the growth and development of the child, it is necessary to identify various factors that influence a mother's parenting behavior. This study used the seventh panel data and included 1,560 of the 2,150 mothers with 6-year-old children who faithfully answered questions related to mothers' parenting.

3. Measurements

1) Parenting role sharing

Parenting role sharing was measured using a scale translated by the Korean Children's Panel researchers on the My Time Spent as a Parent scale developed by the National Institute of Child Health and Human Development (NICHD) under the National Institutes of Health [16]. This scale consists of 16 items on a 5-point Likert scale, from "My spouse does it" (1 point), "Mostly my spouse does it" (2 points), "I do the same thing" (3 points), "Mostly I do it" (4 points), and "I do it" (5 points). On this scale, a higher score of parenting role sharing indicates that the wife was more involved in parenting activities, and a lower score indicates that the husband was more involved in parenting activities. In previous research, the reliability was shown by a Cronbach's α of .91 [14]. In this study, Cronbach's α was .84.

2) Parenting stress

Parenting stress was measured using the Parenting Stress Scale developed by Kim and Kang [17]. The Parenting Stress

Scale consists of three subscales, namely "typical stress due to parenting," "pressures concerning the parental role and distress," and "guilt due to the parenting by others." Eleven items related to "pressures regarding the parental role and distress" were used in this study. The items are scored on a 5-point Likert scale, from "strongly disagree" (1 point) to "strongly agree" (5 points). High scores indicate high parenting stress. Cronbach's α , as a measure of the reliability of the 11 items of this scale, was .79 in the original study [17], while it was .88 in the present study.

3) Happiness

Happiness was measured using the Subjective Happiness Scale developed by Lyubomirsky and Lepper and translated and modified by the Korean Children's Panel researchers. This scale consists of four items on a 7-point Likert scale, from "I am not happy" (1 point) to "I am very happy" (7 points). Higher scores indicate a higher degree of happiness. In previous studies, Cronbach's α was .88 [13]. In this study, Cronbach's α was .88.

4) Warm parenting behavior

Warm parenting behavior was measured using a scale developed by the Korean Children's Panel researchers, referring to questions on the Parenting Behavior Scale developed by Cho et al.[18]. The Parenting Behavior Scale consists of warm parenting behavior (six items) and controlling parenting behavior (six items). In this study, the six items for warm parenting behavior were used on a 5-point Likert scale, with a high score indicating a high level of warm parenting behavior. Cronbach's α of this scale, as confirmed by the original designer, was .87 [18]. In this study, Cronbach's α was .86.

4. Ethical Considerations

This study used public data from the PSKC with guaranteed anonymity of the participants [16]. Approval was obtained from the institutional review board of the researchers' affiliated institution (No. E2109/001-003).

5. Data Analysis

Data were analyzed using SPSS version 22.0 (IBM Corp., Armonk, NY, USA). The participants' general characteristics were analyzed using frequency, percentage, mean, and standard deviation. The differences in parenting role sharing, parenting stress, happiness, and warm parenting behavior according to general characteristics were analyzed by the t-test and analysis of variance. The correlations among parenting role sharing, parenting stress, happiness, and warm

parenting behavior were analyzed using Pearson correlation coefficients. Finally, the factors influencing mothers' warm parenting behaviors were analyzed using stepwise multiple regression.

RESULTS

1. General Characteristics of Participants

Most mothers were between the ages of 31 years and 40 years (81.8%), and the mean age of mothers was 36.8 ± 3.7 years. A total of 57.0% of the mothers had less than a university degree, and 54.7% were unemployed. The majority (61.3%) had an average monthly family income of less than 150% of the median income. The average length of marriage was 10.0 ± 9.2 years, and most of the mothers had two children (64.5%). Regarding subsequent childbirth plans, 87.4% of mothers answered that they would not have more children (Table 1).

2. Parenting Role Sharing, Parenting Stress, Happiness, and Warm Parenting Behavior

The mean score for parenting role sharing was 60.76 ± 10.84 out of 80 points; the mean score of parenting stress was 28.34 ± 6.86 out of 55 points; the mean score of happiness was 20.85 ± 4.32 out of 28 points; and the mean score of warm parenting behavior was 21.78 ± 3.24 out of 30 points (Table 1).

3. Comparison of Parenting Role Sharing, Parenting Stress, Happiness, and Warm Parenting Behavior According to General Characteristics

The mothers' perceived parenting role sharing was significantly higher when mothers were not employed or studying ($t=9.27$, $p<.001$) and when the average monthly household income was less than 150% of the median income ($t=4.81$, $p<.001$) (Table 2).

Parenting stress was significantly higher when the mother's education level was high school graduation or below ($F=16.10$, $p<.001$), when the average monthly household income was less than 150% of the median income ($t=5.36$, $p<.001$), and when the current number of children was two rather than one ($F=2.77$, $p=.040$) (Table 2).

Happiness was significantly higher when the mother's education level was higher than college graduation, and happiness was significantly lower when the mother's education level was high school graduation or lower ($F=20.70$, $p<.001$). Happiness was significantly higher when the average monthly household income was 150% or more of the median income

Table 1. General Characteristics of the Participants (N=1,560)

Variables	Categories	n (%) or M±SD	Range
Age (year)		36.8±3.7	
	25-30	52 (3.3)	
	31-35	530 (34.0)	
	36-40	745 (47.8)	
	≥ 41	233 (14.9)	
Education level	High school or below	461 (29.5)	
	College	429 (27.5)	
	University graduate or above	670 (43.0)	
Employment and academic status	Working or studying	706 (45.3)	
	Not working or not studying	854 (54.7)	
Monthly income	< 150% median income	956 (61.3)	
	≥ 150% median income	604 (38.7)	
Marriage period (year)		10.0±9.2	
Number of children	1	176 (11.3)	
	2	1,007 (64.5)	
	3	331 (21.2)	
	≥ 4	46 (3.0)	
Gender of child	Boy	799 (51.2)	
	Girl	761 (48.8)	
Subsequent childbirth plan	Currently pregnant	26 (1.7)	
	Plan more children	57 (3.7)	
	Plan no more children	1,364 (87.4)	
	Not sure	113 (7.2)	
Parenting role sharing		60.76±10.84	16-80
Parenting stress		28.34±6.86	11-55
Happiness		20.85±4.32	4-28
Warm parenting behavior		21.78±3.24	6-30

($t=6.57, p<.001$), and when they answered that they plan to have more children ($F=3.50, p=.015$). When considering the mother's age, there were no statistically significant results in the post-hoc test. However, happiness was found to be higher in the ranges of 31-35 years and 36-40 years than in the other age groups ($F=2.70, p=.044$) (Table 2).

Warm parenting behavior was significantly higher when the mother's education level was university graduation or higher ($F=12.66, p<.001$), when the average monthly household income was 150% or more of the median income ($t=3.25, p=.001$), and when the current total number of children was 1 ($F=3.41, p=.017$) (Table 2).

4. Correlations among Parenting Role Sharing, Parenting Stress, Happiness, and Warm Parenting Behavior

The mothers' parenting role sharing showed a significant positive correlation with parenting stress ($r=.06, p=.019$) and

warm parenting behavior ($r=.07, p=.007$). Conversely, happiness ($r=-.10, p<.001$) showed a significant negative correlation. Parenting stress had a significant negative correlation with happiness ($r=-.52, p<.001$) and warm parenting behavior ($r=-.54, p<.001$). In addition, mothers' happiness showed a significant positive correlation with warm parenting behavior ($r=.38, p<.001$) (Table 3).

5. Factors Influencing Warm Parenting Behavior

Stepwise multiple regression analysis was performed to identify factors influencing mothers' warm parenting behavior. The results of confirming multicollinearity to test the assumption of regression analysis revealed that the tolerance limit was 0.72 to 0.99 (more than 0.1) and the variance inflation factor was 1.01 to 1.39 (less than 10). Therefore, there was no problem with multicollinearity. In the autocorrelation test of the errors, the Durbin-Watson index was 1.995 (close to 2), in-

Table 2. Comparisons of Parenting Role Sharing, Parenting Stress, Happiness, and Warm Parenting Behavior According to General Characteristics ($N=1,560$)

Variables	Categories	Parenting role sharing		Parenting stress		Happiness		Warm parenting behavior	
		M \pm SD	t or F (<i>p</i>)	M \pm SD	t or F (<i>p</i>)	M \pm SD	t or F (<i>p</i>)	M \pm SD	t or F (<i>p</i>)
Age (year)	25-30	58.38 \pm 13.18	1.19	28.69 \pm 8.43	0.57	20.25 \pm 5.30	2.70	21.25 \pm 3.68	2.11
	31-35	60.65 \pm 10.56	(.312)	28.61 \pm 7.05	(.635)	21.03 \pm 4.33	(.044)*	21.60 \pm 3.30	(.098)
	36-40	60.77 \pm 10.66		28.25 \pm 6.53		20.96 \pm 4.19		21.83 \pm 3.14	
	≥ 41	61.48 \pm 11.44		27.98 \pm 7.06		20.18 \pm 4.39		22.15 \pm 3.34	
Education	\leq High school ^a	60.61 \pm 11.83	0.46	29.81 \pm 7.22	16.10	19.77 \pm 4.51	20.70	21.23 \pm 3.61	12.66
	College ^b	60.45 \pm 10.54	(.631)	28.08 \pm 6.42	(<.001)	21.31 \pm 4.13	(<.001)	21.71 \pm 2.99	(<.001)
	\geq University graduate ^c	61.05 \pm 10.32		27.51 \pm 6.72	a > b, c [†]	21.29 \pm 4.16	a < b, c [†]	22.21 \pm 3.08	a, b < c [†]
Employment and academic status	Working or studying	57.97 \pm 11.87	9.27	27.97 \pm 7.10	1.95	20.95 \pm 4.24	0.87	21.84 \pm 3.32	0.70
	Not working or not studying	63.06 \pm 9.31	(<.001)	28.65 \pm 6.64	(.052)	20.76 \pm 4.37	(.386)	21.73 \pm 3.18	(.483)
Monthly income	< 150% median income	61.83 \pm 10.75	4.81	29.08 \pm 6.93	5.36	20.28 \pm 4.45	6.57	21.57 \pm 3.34	3.25
	\geq 150% median income	59.11 \pm 10.79	(<.001)	27.19 \pm 6.58	(<.001)	21.74 \pm 3.94	(<.001)	22.12 \pm 3.06	(.001)
Number of children	1 ^a	60.39 \pm 11.43	0.70	27.09 \pm 7.37	2.77	20.62 \pm 4.44	0.23	22.49 \pm 3.03	3.41
	2 ^b	61.03 \pm 10.74	(.553)	28.62 \pm 6.70	(.040)	20.85 \pm 4.30	(.873)	21.69 \pm 3.16	(.017)
	3 ^c	60.28 \pm 10.44		28.31 \pm 6.85	a < b [†]	20.95 \pm 4.22		21.73 \pm 3.54	a > b [†]
	≥ 4 ^d	59.50 \pm 13.35		27.48 \pm 7.86		20.93 \pm 4.95		21.35 \pm 3.43	
Gender of child	Boy	60.34 \pm 10.90	1.56	28.37 \pm 7.04	0.16	20.81 \pm 4.32	0.29	21.76 \pm 3.25	0.20
	Girl	61.19 \pm 10.77	(.119)	28.32 \pm 6.67	(.874)	20.88 \pm 4.32	(.769)	21.80 \pm 3.24	(.841)
Subsequent childbirth plan	Currently pregnant ^a	57.81 \pm 10.37	0.80	29.31 \pm 6.37	0.90	19.46 \pm 4.50	3.50	21.19 \pm 2.80	1.43
	Plan more children ^b	60.12 \pm 12.73	(.494)	27.11 \pm 8.41	(.439)	22.39 \pm 4.09	(.015)	22.56 \pm 4.29	(.234)
	Plan no more children ^c	60.87 \pm 10.80		28.40 \pm 6.78		20.79 \pm 4.33	b > a, c [†]	21.76 \pm 3.20	
	Not sure ^d	60.38 \pm 10.50		28.04 \pm 7.05		21.06 \pm 4.03		21.83 \pm 3.29	

*The post-hoc analysis result was not statistically significant; [†] Tukey HSD post hoc test, $p < .050$.

Table 3. Correlations of Parenting Role Sharing, Parenting Stress, Happiness, and Warm Parenting Behavior in Mothers of Children Aged 6 Years ($N=1,560$)

Variables	Parenting role sharing	Parenting stress	Happiness
	r (<i>p</i>)	r (<i>p</i>)	r (<i>p</i>)
Parenting stress	.06 (.019)	-	-
Happiness	-.10 (<.001)	-.52 (<.001)	-
Warm parenting behavior	.07 (.007)	-.54 (<.001)	.38 (<.001)

Table 4. Factors Influencing Warm Parenting Behavior ($N=1,560$)

Variables	Warm parenting behavior						
	B	SE	β	t	<i>p</i>	TOL	VIF
(Constant)	23.71	0.75	-	31.51	<.001	-	-
Parenting stress	-0.22	0.01	-.47	19.04	<.001	0.73	1.38
Happiness	0.11	0.02	.15	6.02	<.001	0.72	1.39
Parenting role sharing	0.03	0.01	.11	5.27	<.001	0.99	1.01

$R^2=.56$, Adjusted $R^2=.32$, $F=240.66$, $p < .001$

TOL, tolerance; VIF, variance inflation factor.

dicating no autocorrelation. As a result of analyzing the residuals, it was found that normality was satisfied in the normal P-P plot of the standardized residuals, and the distribution of the residuals was evenly distributed around 0 in the scatterplot, satisfying the equal variance of residuals. Therefore, all the basic assumptions of the regression analysis were satisfied.

Stepwise multiple regression analysis revealed that the significant predictors for a mother's warm parenting behavior were parenting stress ($\beta = -.47$, $p < .001$), happiness ($\beta = .15$, $p < .001$), and parenting role sharing ($\beta = .11$, $p < .001$). These factors explained 56% of variance in the mothers' warm parenting behavior ($R^2 = .56$, $F = 240.66$, $p < .001$) (Table 4).

DISCUSSION

This study used the seventh-panel data from the PSKC to identify the relationships among parenting role sharing, parenting stress, happiness, and the warm parenting behaviors of mothers of 6-year-old children, as well as the factors influencing the mothers' warm parenting behaviors.

This study examined the differences in parenting role sharing, parenting stress, happiness, and warm parenting behavior according to the general characteristics of the mothers. The mothers' parenting role sharing showed significant differences depending on employment, academic status, and family income level. The mother's parenting role sharing was high when the mother was unemployed or uneducated and in cases where the family's income level was low. A previous study also reported that the degree of parenting role sharing was higher in unemployed mothers than in employed mothers [10]. Moreover, families with low household income levels had the lowest parenting participation by fathers [19]. These findings show that fathers in families with low household incomes are often the only employed parent. Thus, the mother plays a more significant role in raising children as a full-time mother. To alleviate the mother's high burden of parenting, it is necessary to develop parenting education programs for parents and specialized parenting education programs for fathers. Parenting education programs need to teach the importance of co-parenting, recognize the importance of fathers' participation in parenting, and increase the participation of fathers by educating them on how to participate. These programs should be community programs that parents can attend on weekends. Online education programs should also be considered. Moreover, since vulnerable individuals may have less access to parenting education programs, policy support is needed.

The present study established that mothers' parenting

stress was higher when the education level was high school graduation or below, and when the family's income level was less than 150% of the median income. Our findings are consistent with previous studies indicating that parenting stress is affected by education level [8] and family income [20,21]. Therefore, intervention strategies are needed to help vulnerable groups with low educational and income levels develop their ability to cope with parenting stress and manage parenting stress independently. Based on the total number of children in a family, there was a statistically significant difference in mothers' parenting stress. Our study found that mothers' parenting stress was higher when handling two or more children as compared to one child. This finding contradicts the results of some previous studies [22]. Therefore, it cannot be concluded that a higher number of children necessarily corresponds to higher parenting stress. Although there are more child-rearing-related tasks in multi-child families, it can be expected that there could also be other influencing factors, such as mastery of parenting and mature judgment.

In this study, mothers' happiness was negatively associated with education and family income. Previous studies have shown that when mothers have a low education level, their self-esteem is lower [8], parenting stress is higher [8], and happiness is lower [23], supporting the present study results. A survey by Seo and Cho [23] also showed that high household income correlated with higher levels of happiness for mothers, indicating that an economically stable family environment increases mothers' psychological stability and happiness.

To the best of our knowledge, no previous studies have analyzed mothers' degree of happiness according to their subsequent childbirth plan. However, in a study by Song et al. [24], depression in mothers affected subsequent childbirth planning negatively. Mothers with high depression levels did not plan to have subsequent childbirth. Jang [25] also found that higher levels of parenting stress in mothers were associated with a lower likelihood of planning for subsequent childbirth. These results suggest that positive emotions favorably affect plans for subsequent childbirth. Furthermore, considering the current situation in Korea, where birth rates are severely low, it is necessary to actively develop measures to reduce parenting stress for the mothers of infants and school-age children.

In this study, mothers' warm parenting behaviors showed statistically significant differences based on education level, family income level, and the current total number of children. This is consistent with the results of a previous study that reported positive parenting behaviors, accepting attitudes, and active participation in child-rearing when the education level was high [8]. Additionally, mothers from high-income fami-

lies had higher levels of supportive interaction with their children than mothers from low-income families [20]. More positive interactions between mother and child are associated with warmer parenting behavior of mothers [26]. Mothers' warm parenting behavior differed based on their current number of children. When there was only one child, the mother's level of warm parenting behavior was the highest. Married couples in modern society often share economic responsibilities [1]. This especially impacts mothers in dual-income families, who also feel a greater sense of responsibility for parenting [20]. Based on these results, it could be assumed that an increase in the number of children in a dual-income household increases the burden of parenting for mothers, making it difficult to exhibit warm parenting behavior when raising children. Contrary to the results of previous studies, however, this study showed no statistically significant difference in warm parenting behavior according to the mothers' employment status. A possible explanation is that the mothers' warm parenting behavior was influenced by their beliefs and attitudes toward parenting, rather than the number of children or whether the mothers were employed.

In an analysis of correlations between mothers' parenting role sharing, parenting stress, happiness, and warm parenting behavior in this study, mothers' parenting role sharing showed a statistically significant positive correlation with parenting stress and warm parenting behavior. It also showed a negative correlation with mothers' level of happiness. In a study by Han and Lee [10], mothers who had a higher share in the parenting role also reported higher parenting stress. Moreover, another study [9] reported that the more fathers participated in parenting, the lower the mothers' parenting stress, reflecting the importance of shared parenting roles between mothers and fathers.

The mother's shared parenting role showed a statistically significant positive correlation with warm parenting behavior in the present study. This contradicts a previous study, which reported that a high parenting role sharing for mothers' led to parenting stress, potentially resulting in negative parental behavior towards their children [4,8]. This suggests that parenting behavior depends on how mothers accept their share of the parenting role and cope with parenting stress, even when the mother's share of the parenting role is high.

Based on this study, mothers' parenting stress has strong negative correlations with their happiness and warm parenting behavior. Mothers experience low levels of happiness [13] and high levels of depression due to parenting stress [27]. Furthermore, mothers' negative emotions negatively affect parenting attitudes toward their children [28]. Strategies are needed to lower mothers' parenting stress, as well as provide emotional support and parental education. Considering ways

to reduce mothers' parenting stress and enhance the positive emotion of happiness can promote mothers' warm parenting behavior.

This study identified factors that significantly predicted the mothers' warm parenting behavior: parenting stress, happiness, and parenting role sharing. In previous studies, mothers' degree of parenting stress was the most significant predictor of the mother's warm parenting behavior [2,13]. Furthermore, mothers' level of happiness was also found to be an important variable influencing their warm parenting behavior, supporting the results of the present study [13,15]. However, it was challenging to compare this study's findings with other studies because there were limited previous studies that examined the relationship of mothers' parenting role sharing with the mothers' warm parenting behavior.

Nonetheless, Ok [14] found that high cohesion and flexibility among the family resulted in lower parenting stress for mothers and greater warm parenting behavior. High cohesion and flexibility among families resulted in higher parenting participation by fathers, thus reinforcing the importance of parenting role sharing and the need for active parenting participation by fathers.

Our study confirmed that parenting stress was the main predictor of mothers' warm parenting behavior. A study by Seo and Cho [23] found that mothers' parenting stress most strongly affected their happiness, confirming our findings that nursing intervention strategies are needed to reduce parenting stress among mothers as the primary caregivers. This study found that mothers' parenting stress showed a significant negative correlation with mothers' happiness and warm parenting behavior. These research findings suggest a need for nursing interventions that can reduce mothers' parenting stress and improve their happiness, leading to warm parenting behavior.

This study had methodological limitations because it analyzed secondary data, specifically, cross-sectional data for mothers of 6-year-old children. Future research needs to longitudinally analyze changes in factors related to mothers' parenting as their children grow up. In addition, this study focused on mothers' warm parenting behavior, meaning that the results do not shed light on factors influencing mothers' other parenting behaviors. Future research should consider comparing and analyzing the factors influencing controlling parenting behavior as well as warm parenting behavior.

Nevertheless, this study confirmed that parenting stress had the strongest influence on warm parenting behavior in mothers of 6-year-old children. This study also revealed that there were significant differences in mothers' parenting stress, happiness, and warm parenting behavior based on the mothers' education level and family income level. Therefore, this

study is meaningful in that it highlights the importance of developing programs for socially vulnerable mothers with low education and income levels, as exemplified by programs that support parenting from an early stage, such as the Head Start program in the United States [29]. The Head Start Program provides comprehensive services for the cognitive and language development, health, and nutrition of preschool children from low-income families [29]. Korea has implemented a similar parenting support program called the Seoul Healthy First Step Project (SHFSP). The SHFSP is a prenatal and early childhood home-visit program, implemented by the Seoul Metropolitan Government, which was started to close the health gap in Seoul. This program examines the mother's physical health problems, emotional depression, and parenting stress from the prenatal period to 2 years after childbirth, and evaluates children's growth, development, and parenting environment. The program also educates parents on the knowledge and skills needed for successful parenting. These activities help parents adapt to their parenting roles and learn how to experience positive interactions with their children, thereby strengthening their parenting ability [30]. However, since this project is only for pregnant women and infants living in Seoul, it is necessary to develop a policy to support all low-income families in Korea by expanding the project nationwide.

CONCLUSION

This study was conducted to identify the factors that influence mothers' warm parenting behavior as the primary caregivers and to contribute to nursing interventions that promote mothers' warm parenting behavior. The factors that significantly predicted mothers' warm parenting behavior were parenting stress, happiness, and parenting role sharing. Among them, mothers' parenting stress was one of the critical factors related to mothers' warm parenting behavior, implying that managing mothers' parenting stress can positively affect mothers' parenting behavior. In addition, this study confirmed that there was a significant difference in parenting stress according to mothers' education level and the family income level. Nursing interventions to reduce parenting stress are recommended, especially programs to help manage mothers' parenting stress and improve their coping abilities, targeting mothers of vulnerable groups with low educational and income levels.

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Authors' contribution

Conceptualization: all authors; Data curation, Formal analysis: all authors; Writing-original draft, Writing-review and editing: all authors; Final approval of published version: all authors.

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Data availability

Please contact the corresponding author for data availability.

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