



# Factors Affecting Early School-Age Children's Subjective Happiness: Using the Actor-Partner Interdependence Model of Parental Variables

Kang, Kinoh<sup>1</sup> · Kim, Junggho<sup>2</sup> · Kim, Jungmin<sup>3</sup> · Jeong, Hyoeun<sup>3</sup> · Han, Jeongwon<sup>3</sup>

<sup>1</sup>College of Nursing, Korea University, Seoul

<sup>2</sup>Department of Nursing, Masan University, Changwon

<sup>3</sup>College of Nursing, Kosin University, Busan, Korea

**Purpose:** The present study is a descriptive cross-sectional study of cause-and-effect relationship, which used the 7<sup>th</sup> year data of the Panel Study on Korean Children, to investigate the effects of parenting stress, depression, and family interactions of the parents of early school-age children on children's subjective happiness. **Methods:** The present study included data of 1419 pairs of parents who participated in the mother and father survey of the Panel Study on Korean Children. The effects of parenting stress, depression, and parental family interactions on children's subjective happiness were analyzed as actor and partner effects using path analysis. **Results:** Parenting stress had an actor effect on depression; maternal parenting stress ( $\beta = -.21, p < .001$ ) and depression ( $\beta = -.30, p < .001$ ) had an actor effect on maternal family interaction; and paternal parenting stress ( $\beta = -.18, p < .001$ ) and depression ( $\beta = -.17, p < .001$ ) had a partner effect on maternal family interaction. Paternal parenting stress was found to have an actor effect on paternal family interaction ( $\beta = -.30, p < .001$ ), and parental depression was found to have actor effect ( $\beta = -.23, p < .001$ ) and maternal depression had a partner effect on paternal family interactions ( $\beta = -.22, p < .001$ ). Children's subjective happiness was found to have a statistically significant relationship with maternal family interaction ( $\beta = .40, p < .001$ ). **Conclusion:** The significance of the study is in its provision of basic data for adjusting parents' family interactions that are closely related to the growth and development of children by confirming the effect of parents' parenting stress, depression, and family interaction on children's subjective happiness.

**Key words:** Depression; Child; Happiness; Parents

## INTRODUCTION

Happiness is a universal and ultimate goal of life that everybody expects from birth, and it can be considered the psychological state constantly pursued in the course of life [1]. In addition, rather than being abstract, it is defined as the mind feeling sufficient satisfaction and joy in life and the state in which people acquire what they want in everyday life and feel satisfaction and joy for what they have acquired [2]. According to the 8th international comparison report on children and adolescents' happiness index [3], the 2016 subjective happiness index of children and

adolescents in South Korea was the lowest among the 22 member countries of the Organization for Economic Cooperation and Development (OECD), with 82 points (out of 100 points), and has maintained its lowest level with scores in the range of 60~70 points every year since the first survey in 2009 until the 2014 survey. Happiness experienced by children is not only an important index to explain the current development and adaptation of children, but also a factor that can predict development and adaptation during adolescence and adulthood, especially because school-age children are prone to experience conflicts and confusions in the process of rapid physical development and mental

Address reprint requests to : Han, Jeongwon

College of Nursing, Kosin University, 262 Gamcheon-ro, Seo-gu, Busan 49267, Korea  
Tel: +82-51-990-3986 Fax: +82-51-990-3986 E-mail: hjw0721@naver.com

Received: May 30, 2017 Revised: November 24, 2017 Accepted: November 24, 2017

This is an Open Access article distributed under the terms of the Creative Commons Attribution NoDerivs License. (<http://creativecommons.org/licenses/by-nd/4.0>)  
If the original work is properly cited and retained without any modification or reproduction, it can be used and re-distributed in any format and medium.

maturity. Due to the nature of developmental stages, the happiness of school-age children also becomes a developmental task to help them face a smooth adolescence [4].

When children's happiness is closely looked at in conjunction with top-down and bottom-up theories, the explanation of children's happiness with the bottom-up theory is limited because the bottom-up theory is focused on the sociodemographic characteristics related to the happiness perceived by children. The bottom-up theory is the method of evaluating the development and function of the state at the level of people's happiness while the feeling of happiness is an emotion subjectively experienced as individuals live their daily lives. On the other hand, the top-down theory is focused on the factors of the individual's stable tendencies and psychological characteristics that experience the environment in a positive or negative way, and emphasizes children's self-esteem, social activities, and interpersonal relationships as important factors influencing happiness [1]. Specifically, because the first relationship children form with their parents after they are born becomes the source of their intellectual, emotional, social, linguistic, and physical development, the positive relationship between parents and children is explained as the direct predictor variable that influences children's happiness [5]. In addition, from the ecological point of view, the happiness of school-age children is perceived from the activities experienced in various areas such as individual, family, school, and society and, especially for school-age children, a large portion of their happiness is from the experience of school life [6]. The relationship between parents and children is more important than any other interpersonal relationship, as it is the first interpersonal relationship to form when children are born [7] and because school-age children adapt to school life based on the social life learned from parents at home [8]. Additionally, the psychological and emotional propensities formed through interactions with parents and the role of parents in the happiness children perceive has significant meaning [9].

Parents of school-aged children have the obligation and responsibility to provide a good childcare environment for the growth and development of their children, but parents in modern society are complaining of the burden of proper childcare as the time to be with their children decreases due to busy social lives and experiencing the stress of parenting [9]. Parenting stress is defined as distress and uncomfortable experiences occurring in

the process of carrying out the role of parenting [10]. It is the cause of emotional distress in marital life [11] and has been reported to be a predictor variable that negatively influences children's development [12]. Moreover, if parenting stress is high and for an extended period of time, the chance of experiencing depression increases, and because parental depression not only makes the relationship with children negative but also increases problem behaviors and negative emotions in children, it can be a conclusive factor that decreases the perceived happiness of children as a result [13].

Research on infants [14] has reported that parenting stress experienced by mothers directly influences depression, and maternal depression influences the negative emotion of the child. Research on children [15] has reported that parenting stress and depression of mothers also influences the development of the child's social behavior. Abidin [16] stated that the high parenting stress negatively influences interactions with children, resulting in inappropriate behavior of the caregiver; and Park & Kwon [17] emphasized that parenting stress is the major variable that influences not only the psychological satisfaction and parenting attitude of parents, but also the development and adaptation of children. In addition, depression of the caregiver is the cause for the caregiver taking a negative parenting style in interactions with children [18], and a study by Marchand & Hock [19], which investigated parental differences in depression, reported that paternal depression has a greater influence on the child's problem behaviors than maternal depression.

Since a husband and wife are significant others, the relationship between them is not only intimate and bidirectionally influencing [20], but also has strong interpersonal dynamics. The stress experienced by one of the parents is very likely to be transferred to the other, and it increases the possibility of transferring depression to the entire family [13]. Accordingly, it is necessary to investigate the actor and partner effects at the same time while treating parenting stress, depression, and family interactions related to children's happiness as a single unit [21]. The majority of previous studies, however, have the limitation of attempting to measure the propensity of children through the characteristics of one parent. In particular, research investigating children's happiness focused on the variables related to parents of school-age children and that are related to development and ad-

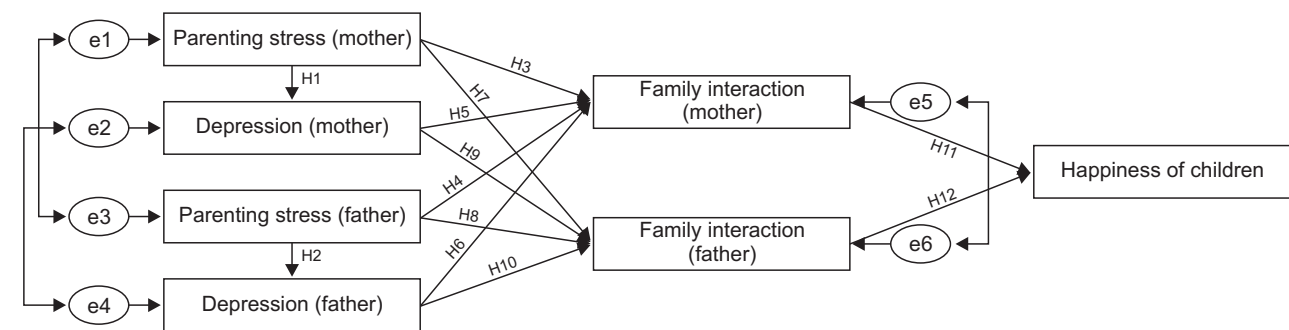
aptation in adolescence and adulthood are also lacking. Accordingly, the present study investigated the relationship between parenting stress, depression, parental family interactions, and children's subjective happiness based on the Actor-Partner Interdependence Model (APIM) using the data of the Panel Study on Korean Children. While studies of couple's relationship choose couple an analysis unit, they examine two sets of individual data, assuming that independent variables of an individual not only affect his or her own dependent variables, but also the partner's dependent variables. In such research, the effect of one's own psychological and behavioral aspects on oneself is referred to as 'actor effect' while its effect on others is called 'partner effect'. Presence of partner effect means interdependence of a couple and the greater the partner effect is, the higher level of interdependence becomes [21]. In this sense, APIM, an analysis method for evaluating a couple's effects to each other, serves as a statistical tool for testing the two persons' mutual influence, a partner relationship model that integrates conceptual perspectives on interdependence, and an alternative to avoid type 1 errors.

Specifically, we investigated the relationship among the factors including parental interactions using the Actor-Partner Interde-

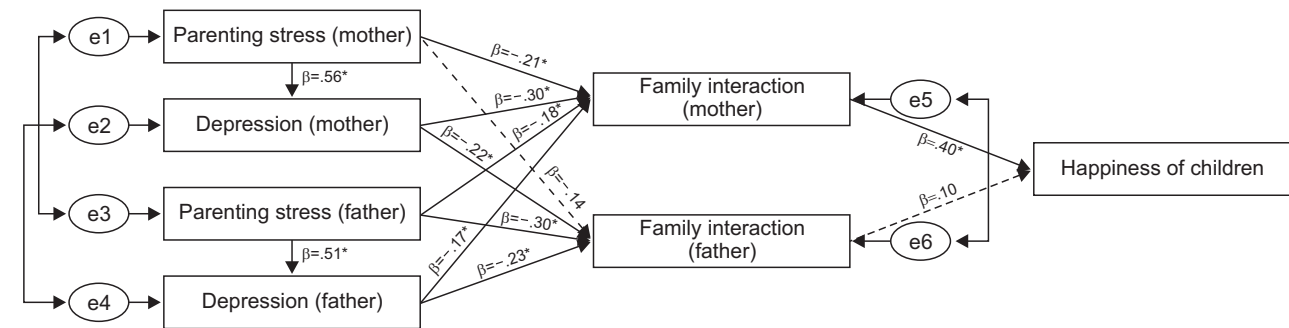
pendence Model. The specific purposes of the present study were as follows: 1) Identify actor effect and partner effect of parents' parenting stress and depression on their family interaction as well as the effect of parents' family interaction on children's happiness. 2) Identify the direct and indirect influences of parenting stress, depression, and parental family interactions on children's subjective happiness.

### 1. Conceptual framework and hypothetical model

As for the conceptual framework of this study, APIM suggested by Kenny et al. [21] was adopted, in an attempt to investigate how parents' parenting stress, depression and family interaction, some of the key variables in the parent-child relationship in the family, affect children's subjective happiness. Considering that emotional status of children in the early childhood is highly influenced by interaction with parents, the relationship of mothers and fathers, who are in charge of childcare in the family system, was examined based on APIM. The effect of one's own psychological and behavioral aspects on oneself is referred to as actor effect while its effect on others is called partner effect. Parents' parenting stress ultimately influences the mutual relationship of



1A Hypothetical model for happiness of children



1B Test of hypothetical model for happiness of children

Figure 1. The path diagram for the hypothetical model.

the couple, and the stress also affects depression. As such, with an assumption that parenting stress and depression perceived by parents make actor and partner effects on family interaction, the model in Figure 1A as well as research hypotheses were developed as follows.

Hypothesis 1. Mothers' parenting stress has actor effect on their depression.

Hypothesis 2. Fathers' parenting stress has actor effect on their depression.

Hypothesis 3. Mothers' parenting stress has actor effect on their family interaction.

Hypothesis 4. Fathers' parenting stress has partner effect on maternal family interaction.

Hypothesis 5. Mothers' depression has actor effect on their family interaction.

Hypothesis 6. Fathers' depression has partner effect on maternal family interaction.

Hypothesis 7. Mothers' parenting stress has partner effect on paternal family interaction.

Hypothesis 8. Fathers' parenting stress has actor effect on their family interaction.

Hypothesis 9. Mothers' depression has partner effect on paternal family interaction.

Hypothesis 10. Fathers' depression makes actor effect on their family interaction.

Hypothesis 11. Maternal family interaction affects happiness of their children.

Hypothesis 12. Paternal family interaction affects happiness of their happiness.

## METHODS

### 1. Research design

The present study is a descriptive cross-sectional cause-and-effect relationship study to analyze the influence of parenting stress, depression, and family interactions of the parents of early school-age children on children's subjective happiness by applying the Actor-Partner Interdependence Model and using the 7th year data of the Panel Study on Korean Children (Figure 1A).

### 2. Study sample

The present study included 1,419 pairs of parents who participated, as the subjects, in the seventh year of the mother and father survey of the Panel Study on Korean Children. Since the minimum number of samples for path analysis is 200 or more, it was confirmed that 1,419 pairs of parents was a sufficient number of samples to conduct path analysis. And the sample size for each group in this study was determined by G\*Power 3.1.9 based on multiple regression analysis, which suggested medium effect size of .15, a of .05, power of .90, and predictor of 6, confirming this study secured the minimum sample size of 123 couples. In the Panel Study on Korean Children, preliminary samples of 2,562 families, who were willing to participate in the panel, were recruited among families that were raising a baby born in April to July, 2008 in sample medical institutions, which help more than 500 deliveries every year as of 2006. More specifically, the Panel Study adopted stratified multi-stage sampling to select samples. In the first stage, it chose medical institutions that support childbirth. In the second stage, families that had their newborns delivered at the chosen medical institutions were extracted as preliminary samples. Finally, in the third stage, families that were willing to take part in the panel among the preliminary samples were filtered out and 2,150 families, who actually responded to the study, were ultimately selected as the panel. In the seventh year, 75.3% of the entire samples remained in the panel. Among them, those that answered both questionnaires for mothers and fathers and the survey on children were selected for this present study.

### 3. Measurement

The measurement tools of the present study, which were selected to fit the purpose of the study, were a part of the items measured for the seventh Panel Study on Korean Children.

#### 1) General characteristics of the subjects

The general characteristics of the subjects were common items in the questionnaires for mothers and fathers, which included age, level of education, household income, age of the child, and duration of the marriage.

## 2) Parenting stress

Parenting stress in the survey of the Panel Study on Korean Children was measured by 'the pressure and distress of performing parental role' section, which is a part of the parenting stress scale developed by Kim & Kang [22]. The scale is composed of 11 items on a five-point Likert scale; a higher score signifies greater stress of parenting. The reliability of the scale, measured by Cronbach's  $\alpha$ , was .88 in the study by Kim & Kang [22], and the reliability of the scales in the present study was Cronbach's  $\alpha$  = .88 (mother) and Cronbach's  $\alpha$  = .87 (father).

## 3) Depression

Depression was measured by using Psychological Distress Scale, originally developed by Kessler et al. [23] and translated and modified by the survey team of Panel Study on Korean Children. It consisted of a total of six questions, each of which was rated on a 5 point scale – none of the time (1), a little of the time (2), some of the time (3), most of the time (4) and all of the time (5). Higher points indicated higher levels of depression. As for the reliability of the scale, while Cronbach's  $\alpha$  in the study of Kessler et al. [23] was .89, that in this study stood at .92 for mothers and .93 for fathers.

## 4) Family interaction

Family interaction was measured by using version of the scale developed by Olson & Barnes [24] and translated and modified by the survey team of Panel Study on Korean Children. The scale is composed of 14 items (two sub-factors: cohesion balance and flexibility balance). Each item was measured on a five-point scale of strongly disagree (1 point), somewhat disagree (2 points), neutral (3 points), somewhat agree (4 points), and strongly agree (5 points). A higher score indicates a greater level of family interaction. The reliability of the instrument measured by Cronbach's  $\alpha$  was .84~.89 in the study by Olson & Barnes [24], while the reliability of the instrument in the present study was Cronbach's  $\alpha$  = .91 (mother) and Cronbach's  $\alpha$  = .92 (father).

## 5) Children's subjective happiness

Children's subjective happiness was measured by four items of the instrument developed by Lyubomirsky & Lepper [25] and translated and confirmed through a preliminary survey by the

researchers of the Panel Study on Korean Children. The scale that measured children's subjective happiness was a four-point Likert scale from one point to four points, and facial expression cards were presented to help with responses. A higher score signifies a higher level of happiness. The reliability of the instrument measured by Cronbach's  $\alpha$  was .86 in the study of Lyubomirsky & Lepper [25] and the test-retest reliability of the instrument measured at three weeks to one year intervals in the Panel Study of Korean Children was Cronbach's  $\alpha$  = .73.

## 4. Data collection and analysis method

To obtain the data used in the present study, a research plan was submitted to and reviewed by the Panel Study on Korean Children, which is operated by the Korea Institute of Child Care and Education, through its home page (<http://panel.kicce.re.kr>). The data were received without sensitive data from which personal information was identifiable. In addition, the present study was conducted after obtaining approval from the Institutional Review Board of K University (KU IRB 2017- 0037-01). The data analysis procedure was as follows. The present study used SPSS WIN 18.0 (SPSS Korea Data Solution, Inc.) and AMOS 18.0 (SPSS Korea Data Solution, Inc.) programs for data input and analysis, and all analyses were carried out applying the cross-sectional weights recommended by the Panel Study on Korean Children. The general characteristics of the subjects were analyzed using real numbers, percentages, averages, and standard deviations, and parenting stress, depression, family interaction, and the level of children's subjective happiness were analyzed by averages and standard deviations. In addition, the relationships among subjects' parenting stress, depression, family interaction, and children's subjective happiness were analyzed using Pearson's correlation coefficient. The effect of parenting stress, depression, and parental family interactions on children's subjective happiness were analyzed as actor and partner effects using path analysis, and the direct and indirect effects of parental variables on children's subjective happiness were confirmed using bootstrapping.

## RESULTS

### 1. General characteristics of the subjects

The mean age of mothers and fathers was 36.76 years and

39.24 years, respectively, and the most prevalent education levels of mothers and fathers were four-year university graduate or higher with 608 people (42.8%) and 739 people (52.1%), respectively. Children were made up of 719 (50.7%) boys and 700 (49.3%) girls. Concerning their mothers' job, 787 (55.5%) were unemployed (including students and housewives), 425 (30.0%) were managers or had a white collar job while 120 (8.5%) were working in the service sector or as sales persons. As for fathers' occupation, 655 (46.2%) were managers or had a white collar job, 340(24.0%) were engineers or machine fabricators and 187 (13.2%) were working in the service sector or as sales person. The mean monthly income of the household was KRW 4.47 million, the mean age of the children was 75.12 months, and the mean duration of marriage was 118.84 months.

**2. Parenting stress, depression, and parental family interactions, and children's subjective happiness**

Each measured variable was found to be normally distributed with the absolute values of skewness and kurtosis less than two and four, respectively. Parenting stress and level of depression

were higher for mothers with mean scores of 2.57 points and 1.92 points, respectively, than fathers with mean scores of 2.31 points and 1.87 points, respectively. Family interaction was higher for fathers, with mean score of 3.81 points, than mothers whose mean score was 3.78 points. The level of children's subjective happiness was 3.64 points. The Z scores of skewness (0.04~1.01) and kurtosis (0.15~1.59) of all variables used in this study did not exceed the critical threshold (1.96) at the significance level of .05 (Table 1).

**3. Correlations among parenting stress, depression, parental family interactions, and children's subjective happiness**

All variables had statistically significant correlations at the significance level of .05, and no multicollinearity was found among the variables since the absolute value of correlation coefficients among the variables were no greater than .80 [26] (Table 2).

**4. The influence of parenting stress, depression, and family interaction on children's subjective happiness**

To identify the influence of parenting stress, depression, and parental family interactions on children's subjective happiness, a path analysis was performed. The overall goodness of fit of the model was satisfactory with  $\chi^2=11.42$ ,  $df=4$ ,  $NFI=.99$ ,  $CFI=.99$ ,  $TLI=.99$ , and  $RMSEA=.003$ . The analysis of the hypothetical model resulted in the rejection of two of the 12 hypotheses (Table 3) (Figure 1B). Hypothesis 1. Mothers' parenting stress has actor effect on their depression ( $\beta=.56$ ,  $p<.001$ ). Hypothesis 2. Fathers' parenting stress has actor effect on their depression ( $\beta=.51$ ,

**Table 1.** Mean Scores of the Factors

Variables	Mean	Standard deviation	Skewness	Kurtosis
Mothers' parenting stress	2.57	0.61	0.14	0.15
Fathers' parenting stress	2.31	0.74	0.04	0.22
Mothers' depression	1.92	0.53	0.73	0.44
Fathers' depression	1.87	0.60	1.00	1.55
Maternal family interaction	3.78	0.74	0.82	1.44
Paternal family interaction	3.81	0.52	0.59	1.28
Happiness of children	3.64	0.55	1.01	1.59

**Table 2.** Correlation Coefficients among Variables

(N=1,419 dyads)

Variables	X1	X2	X3	X4	X5	X6	X7
X1: Mothers' parenting stress	1						
X2: Fathers' parenting stress	.37*	1					
X3: Mothers' depression	.56*	.30*	1				
X4: Fathers' depression	.23*	.51*	.38*	1			
X5: Maternal family interaction	-.41*	-.38*	-.45*	-.37*	1		
X6: Paternal family interaction	-.37*	-.46*	-.32*	-.43*	.56*	1	
X7: Happiness of children	-.24*	-.27*	-.21*	-.27*	.40*	.32*	1

M=Mean; SD=Standard deviation.

\* $p<.05$ .

**Table 3.** Estimates of Variables for the Hypothetical Model

(N=1,419 dyads)

Independent variables	Dependent variables	$\beta$	B	S.E	C.R	$p$
Mothers' parenting stress →	Mothers' depression	.56	.67	.02	25.45	<.001
Fathers' parenting stress →	Fathers' depression	.51	.62	.02	22.02	<.001
Mothers' parenting stress →	Maternal family interaction	-.21	-.18	.02	-7.19	<.001
Fathers' parenting stress →	Maternal family interaction	-.18	-.17	.02	-3.03	<.001
Mothers' depression →	Maternal family interaction	-.30	-.20	.02	-9.72	<.001
Fathers' depression →	Maternal family interaction	-.17	-.15	.02	-2.75	<.001
Mothers' parenting stress →	Paternal family interaction	-.14	-.13	.02	-1.55	.120
Fathers' parenting stress →	Paternal family interaction	-.30	-.25	.02	-10.77	<.001
Mothers' depression →	Paternal family interaction	-.22	-.18	.02	-4.24	<.001
Fathers' depression →	Paternal family interaction	-.23	-.16	.02	-8.34	<.001
Maternal family interaction →	Happiness of children	.40	.41	.03	13.41	<.001
Paternal family interaction →	Happiness of children	.10	.10	.03	-0.32	.746

CR=Critical ratio, S.E=Standard error.

**Table 4.** Standardized Direct, Indirect and Total Effect of the Model

(N=1,419 dyads)

Independent variables	Dependent variables	Direct effect ( $p$ )	Indirect effect ( $p$ )	Total effect ( $p$ )
Mothers' parenting stress	Maternal family interaction	-.21 (<.001)	-.16 (.010)	-.37 (.010)
Fathers' parenting stress	Maternal family interaction	-.18 (<.001)	-.14 (.010)	-.32 (.010)
Mothers' depression	Maternal family interaction	-.30 (<.001)		-.30 (<.001)
Fathers' depression	Maternal family interaction	-.17 (<.001)		-.17 (<.001)
Mothers' parenting stress	Paternal family interaction	-.14 (.120)	-.17 (.010)	-.31 (.010)
Fathers' parenting stress	Paternal family interaction	-.30 (<.001)	-.12 (.010)	-.42 (.010)
Mothers' depression	Paternal family interaction	-.22 (<.001)		-.22 (<.001)
Fathers' depression	Paternal family interaction	-.23 (<.001)		-.23 (<.001)
Mothers' parenting stress	Happiness of children		-.24 (.010)	-.24 (.010)
Fathers' parenting stress	Happiness of children		-.14 (.015)	-.14 (.015)
Mothers' depression	Happiness of children		-.21 (.010)	-.21 (.010)
Fathers' depression	Happiness of children		-.03 (.070)	-.03 (.070)
Maternal family interaction	Happiness of children	.40 (<.001)		.40 (<.001)
Paternal family interaction	Happiness of children	.10 (.746)		.10 (.746)

$p<.001$ ). Hypothesis 3. Mothers' parenting stress has actor effect on their family interaction ( $\beta=-.21$ ,  $p<.001$ ). Hypothesis 4. Fathers' parenting stress has partner effect on maternal family interaction ( $\beta=-.18$ ,  $p<.001$ ). Hypothesis 5. Mothers' depression has actor effect on their family interaction ( $\beta=-.30$ ,  $p<.001$ ). Hypothesis 6. Fathers' depression has partner effect on maternal family interaction ( $\beta=-.17$ ,  $p<.001$ ). Hypothesis 7. Mothers' parenting stress has partner effect on paternal family interaction ( $\beta=-.14$ ,  $p=.120$ ). Hypothesis 8. Fathers' parenting stress has actor effect on their family interaction ( $\beta=-.30$ ,  $p<.001$ ). Hypothesis 9. Mothers' depression has partner effect on paternal family interaction ( $\beta=-.22$ ,  $p<.001$ ). Hypothesis 10. Fathers' depression makes actor effect on their family interaction ( $\beta=-.23$ ,  $p<.001$ ). Hypothesis 11.

Maternal family interaction affects happiness of their children ( $\beta=.40$ ,  $p<.001$ ). Hypothesis 12. Paternal family interaction affects happiness of their happiness ( $\beta=.10$ ,  $p=.746$ ).

### 5. Direct and indirect effects of parenting stress, depression, and parental family interactions on children's subjective happiness

Bootstrapping was performed to test the direct and indirect influences of parenting stress, depression, and parental family interactions on children's subjective happiness. The results showed that parenting stress had an indirect effect on parental family interactions and children's subjective happiness. It was found, however, that only mother's depression had an indirect ef-

fect on children's subjective happiness (Table 4).

## DISCUSSION

The present study investigated the effect of actor and partner effects on children's subjective happiness in the relationship of parenting stress, depression, and family interactions of the parents using the 7th year data of the Panel Study on Korean Children. The following discussion is centered on it.

First, the present study found that parenting stress has an actor effect on depression, and the finding is similar to that of a previous study [14] on infants, which found that the parenting stress mothers experience has a direct effect on depression. Parenting stress is the representative cause of negative emotions, especially depression, and as parents perform the unfamiliar parental role, their skepticism and feeling small in their parenting ability continues to result in negative emotions [27]. Specifically, parenting stress and depression from it have the characteristics of not easily healing with the passage of time, and it is difficult to solve such issues at home. It is one of the important issues that require countermeasures at the community or government level. In addition, since parental depression is closely related to the child's emotional and social development, it appears to be necessary for nurses to pay attention to parenting stress and the depression of parents and offer education and programs related to them when they mediate children's emotional issues.

Second, parenting stress and depression of parents were found to have significant actor and partner effects on maternal family interaction. The finding is similar to the result of a previous study [13] that found the likelihood of parents experiencing depression increases, and the parental depression will create a negative relationship between parents and children, if the level of parenting stress parents experience is high for an extended period of time. It appears that the parenting stress and depression fathers perceive also influences maternal family interaction because, traditionally, the major portion of parenting is shared among mothers in South Korea, and such an excessive role negatively changes interpersonal relationships by causing stress and depression. Additionally, the level of fathers' parenting participation and parenting quality is mostly evaluated by mothers [28]. Therefore, even though it is important to develop educational programs centered

on mothers to increase maternal family interaction, it is also necessary to develop contents and programs that help to control paternal parenting stress and depression and to train professionals.

Third, paternal parenting stress was found to have an actor effect on paternal family interaction, and the finding is similar to the result of a previous study [16], which showed that the higher the parenting stress, the higher the negative effect on the interaction with children. The partner effect of maternal parenting stress on paternal family interaction in the present study, however, was found to be statistically nonsignificant. It is difficult to make an accurate comparison due to the lack of research that investigated the relationship of family interactions using the APIM while simultaneously addressing parental stress, but the reason appears to be due to the fact that while the psychological stability and satisfaction of the mother varies depending on the father's behavior in the process of parenting, the emotions the father feels in the process of parenting have greater influence on the father's behavior and satisfaction of parenting [29]. Therefore, it may be effective to find methods of reducing paternal parenting stress to increase paternal family interaction, but it is also necessary to reconfirm these findings through repeated research in the future because of the lack of relevant studies.

Fourth, the depression of parents was found to have actor and partner effects on paternal family interaction. It is similar to the finding of previous studies [18,19] that showed negative responses in interactions with children if parents were depressed. Because the husband and wife are significant others and the relationship between them has strong interpersonal dynamics, the stress experienced by one of the parents is very likely to be transferred to the other, and it increases the possibility of transferring depression to the entire family [13]. Ultimately, it appears to have a negative influence on the interactions occurring within the family. Therefore, it is necessary to simultaneously nursing approach depression perceived by the husband and wife along with paternal parenting stress to increase the paternal family interaction, and because the process of early diagnosis and treatment by professionals is important for depression, it may be necessary to actively participate in education and promotion in those areas.

Fifth, maternal family interaction has a statistically significant influence on children's subjective happiness, but paternal family



interaction was found to be statistically nonsignificant. The results are similar to the finding of a previous study [30], which showed that the family interaction with children perceived by the mother positively influences the child's social relationships. The family serves a key role in the development of the child's sociability, and especially, because the mother's behavior, which becomes the basis for forming social relationships, has a significant influence on children's subjective happiness and plays a positive role in the child's peer relationships, maternal family interaction appears to influence children's subjective happiness. Therefore, to increase children's subjective happiness, it is important to consider not only the characteristics of the child but also various factors that can increase the family interaction the mother perceives. Especially, it appears to be important to simultaneously search for the methods that can reduce the parenting stress and depression of parents identified in the present study. In addition, parents' parenting stress and mother's depression were found to indirectly influence children's subjective happiness with family interaction acting as a mediator. It is difficult to make an accurate comparison due to insufficient research that comprehensively confirms the relationships among such variables, but the parental variables should be accurately identified and addressed to increase children's subjective happiness, and especially, controlling the stress that parents experience in the process of parenting appears to be important.

## CONCLUSION

The significance of this study lies in the verification of the effects of parents' parenting stress, depression and family interaction on children's happiness, by examining the data of the Panel Study on Korean Children, the provision of baseline data for adjustment of the relationship. Furthermore, the study not only provides useful information for developing the contents for parental counseling or education of children and parents in nursing research, but it can also serve as basic data for a nursing intervention for parenting in which parents promote children's happiness. In addition, it is necessary to identify the relationships among cognitive and psychological factors that constantly change according to the flow of time by conducting longitudinal studies rather than cross-sectional studies. As this study utilized data

from the Panel Study on Korean Children, there was a limitation for authors to select a variety of variables of children's happiness and check their effects. Also there is a need of additional analysis and replication based on cut-off standards of depression score. Moreover, this study focuses on parental interaction variables of the family unit which are included in the micro-system which has important influence on the children's emotional development based on socio-ecological theory. Thus, there are limitations to generalization because it does not include external environmental variables for children and parents.

## CONFLICTS OF INTEREST

The authors declared no conflict of interest.

## REFERENCES

1. Choi HY, Shin HY, Choi MS, Cho SY. Development of a happiness scale for school-aged Korean children (HSSKC). *Journal of the Korean Home Management Association*. 2009;27(5):1-11.
2. Vitrano C. The structure of happiness [dissertation]. New York: The City University of New York; 2006. p. 1-210.
3. Youm YS. 2016 8th international comparative research on children and adolescents' happiness. Seoul: The Korea Bang Jeong-hwan Foundation; 2016. p. 11.
4. Bae JA, Do HS, Park BK, Kim MJ. The effects of attachment and shared time between mother and child and self-esteem on subjective well-being in late childhood. *Korean Journal of Child Studies*. 2016;37(2):111-125.  
<https://doi.org/10.5723/kjcs.2016.37.2.111>
5. Jeong HS, Kim YH. Determinants of happiness perceived by school children: Focusing of psychological characteristics, social activity, and relationship factors. *Korean Journal of Youth Studies*. 2014;21(7):89-118.
6. Kim MY, Park MS. Interaction effects of social determinants affecting school-aged children's health. *Family and Environment Research*. 2016;54(5):515-527.  
<https://doi.org/10.6115/fer.2016.040>
7. Jung ES, Cho HI. The effects of parental care and overprotection on subjective well-being and depression: The roles of hardiness as mediators. *Korean Journal of Counseling and Psychotherapy*. 2009;21(1):209-227.
8. Hwang YJ, Min HY. The effect of parental attachment on school adjustment perceived by school-age children: Self-perceived competence as a mediating variable. *Journal of the Korean Home Management Association*. 2012;30(2):65-73.

- <https://doi.org/10.7466/JKHMA.2012.30.2.065>
9. Kim JH, Shin HY. The effect of maternal parenting stress, peer relationship and teacher–student relationship on children's daily hassles. *Journal of Life–Span Studies*. 2015;5(3):1–15.
  10. Deater–Deckard K. Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*. 1998;5(3):314–332.  
<https://doi.org/10.1111/j.1468-2850.1998.tb00152.x>
  11. Gerdes AC, Hoza B, Arnold LE, Pelham WE, Swanson JM, Wigal T, et al. Maternal depressive symptomatology and parenting behavior: Exploration of possible mediators. *Journal of Abnormal Child Psychology*. 2007;35(5):705–714.  
<https://doi.org/10.1007/s10802-007-9134-3>
  12. Huang CY, Costeines J, Ayala C, Kaufman JS. Parenting stress, social support, and depression for ethnic minority adolescent mothers: Impact on child development. *Journal of Child and Family Studies*. 2014;23(2):255–262.  
<https://doi.org/10.1007/s10826-013-9807-1>
  13. Kim SS, Jeong JH. The effects of parent's life satisfaction and depression on the children's suicidal ideation. *The Journal of the Korea Contents Association*. 2016;16(2):257–267.  
<https://doi.org/10.5392/JKCA.2016.16.02.257>
  14. Choi HS, Yoon HO, Yeon EM. The longitudinal mediation effects of mothers' positive parenting attitude and depression in the influence of mothers' parenting stress to infants' emotional temperament. *The Korean Society for Early Childhood Teacher Education*. 2015;19(3):119–142.
  15. Byeon HS, Choi JK. The associations among poor single mothers' economic hardship, depressive symptoms, parenting stress, child abuse and neglect, and their children's development. *Journal of the Korean Society of Child Welfare*. 2016;53:1–23.
  16. Abidin RR. The determinants of parenting behavior. *Journal of Clinical Child Psychology*. 1992;21(4):407–412.  
[https://doi.org/10.1207/s15374424jccp2104\\_12](https://doi.org/10.1207/s15374424jccp2104_12)
  17. Park KJ, Kwon YH. Maternal behavior during mother–child problem solving: Effect of marital satisfaction, parenting stress, and attachment security. *Korean Journal of Child Studies*. 2002;23(4):53–70.
  18. Cramer B. Are postpartum depressions a mother–infant relationship disorder? *Infant Mental Health Journal*. 1993;14(4):283–297.  
[https://doi.org/10.1002/1097-0355\(199324\)14:4<283::AID-IMHJ2280140404>3.0.CO;2-I](https://doi.org/10.1002/1097-0355(199324)14:4<283::AID-IMHJ2280140404>3.0.CO;2-I)
  19. Marchand JF, Hock E. Mothers' and fathers' depressive symptoms and conflict–resolution strategies in the marriage and children's externalizing and internalizing behaviors. *The Journal of Genetic Psychology*. 2003;164(2):227–239.  
<https://doi.org/10.1080/00221320309597979>
  20. Yeon EM, Choi HS. Actor and partner effect of infant–parents' emotional value of children, parenting stress, and marital satisfaction. *Korean Journal of Child Care and Education*. 2015;90(90):79–108.
  21. Kenny, DA, Kashy DA, Cook WL. *Dyadic data analysis*. New York: Guilford; 2006. p. 1–24.
  22. Kim KH, Kang HK. Development of the parenting stress scale. *Journal of the Korean Home Economics Association*. 1997;35(5):141–150.
  23. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, et al. Short screening scales to monitor population prevalences and trends in non–specific psychological distress. *Psychological Medicine*. 2002;32(6):959–976.  
<https://doi.org/10.1017/S0033291702006074>
  24. Olson DH, Barnes H. *Family communication*. Minneapolis (MN): Life Innovations; 2004. p. 5.
  25. Lyubomirsky S, Lepper HS. A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*. 1999;46(2):137–155.  
<https://doi.org/10.1023/A:1006824100041>
  26. Hair JF, Black WC, Babin BJ, Anderson RE. *Multivariate data analysis: A global perspective*. 7th ed. Upper Saddle River (NJ): Pearson Education; 2010. p. 1–8.
  27. Choi HS, Yoon HO, Yeon EM. The relationship between the perceptive gap about paternal involvement and interactive peer play of children: Mediating effects of mother's marital conflict, depression, and parenting attitude. *Journal of Early Childhood Education*. 2015;35(1):153–174.
  28. Choi HJ, Choi SN, Im HJ. The effects of mother's parenting behavior, infant's social and emotional behavior, and father's participation in child care on infant's adjustment in child care center: Structural equation approach. *Korean Journal of Child Care and Education*. 2013;76(76):49–72.
  29. Kim EJ, Jeon KY. The influence of perception gap of dual–income parents about paternal involvement on marital conflict: Mediating effects of maternal self–efficacy and depression. *Family and Environment Research*. 2016;54(5):487–498.  
<https://doi.org/10.6115/fer.2016.038>
  30. Kang BJ. The effect of family interaction, children's peer interaction, and social force on the children's problematic behavior. *The Korean Journal of Child Education*. 2010;19(4):93–110.