Testing the Autoregressive Cross-lagged Model Effects among the Emotional Temperament of Young Children, Maternal Depression, and Mothers' Marital Satisfaction[*]

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Abstract

The purpose of this study is to identify the longitudinal reciprocal relationships among young children's emotional temperament, maternal depression, and mothers' marital satisfaction. Three waves of panel data from the Korea Institute of Child Care and Education were analyzed in this study by an adapted autoregressive cross-lagged modeling. The major findings are as follows. First, young children's emotional temperament, maternal depression, and mothers' marital satisfaction were statistically significant over time in the total 3 wave data. Second, young children's emotional temperament (t) had a statistically significant effect on maternal depression (t+1). Mothers' marital satisfaction (t+1) and maternal depression (t) had a statistically significant effect on young children's emotional temperament (t+1) and mothers' marital satisfaction (t+1). And mothers' marital satisfaction (t) had a statistically significant effect on maternal depression (t+1), whereas mothers' marital satisfaction (t) did not predict young children's emotional temperament (t+1). These findings suggests that the emotional temperament can be evaluated differently depending on the mother's emotion.

Keywords : emotional temperament of young children, maternal depression, mothers' marital satisfaction, autoregressive cross-lagged modeling

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Ⅰ. Introduction

The environmental variable that has the strongest influence on infant development is the infant's primary caregiver. The main caregiver of the infant is generally the infant's parents, especially the mother in our society. The importance of mothers can also be seen in previous studies on child care. As it is irrefutable that the mother is an important variable in child development, it is also undeniable that child's temperament is an effective variable on mother's nurturing behavior and emotion. Temperament is defined differently by different scholars. Temperament is a natural biological mechanism inherent in human beings and has a relatively stable characteristic despite various environmental changes and time (Bates, 1989; Buss & Plomin, 1984; Hinde, 1989; Thomas & Chess, 1984). Buss and Promin (1984), representative scholars of the study of temperament, classify it into three components: emotional, active, and social temperaments. Emotional temperament refers to the degree of negative emotional response such as anger, active temperament refers to the degree of the preference on activeness, and social temperament refers to the extent to which the child socialize with others. The mothers of children with high social and active temperaments perceive them with positive behavioral characteristics that emit energy rather than negative recognition of their temperament (Coleman & Karraker, 2003). However, the mothers of children with a severe temperament, that is, a negative emotional temperament, not only lose confidence in child caring but also feel more depressed (Moo & Oh, 2012), affecting mothers' marital satisfaction (Min & Park, 2012). This implies that the emotional temperament of the child is related to both maternal depression throughout child caring and satisfaction level in marriage. Therefore, mothers with children who display high emotional temperament experience great stress from child caring (Min & Park, 2012; Seo & Lee, 2013; Eom, 2014; Han & Park, 1996; Beck, Hasting, Daley., & Stevenson, 2004; Gray, Edwards, O'Callaghan., & Cuskelly, 2012) and such stress leads to increase in maternal depression (Danielle & Abigail, 2011; Susan, Richard, Philip., & Ina, 2001) as well as to decrease in mothers' satisfaction level in marriage (Shin & Jeon, 2008).

It has been reported that children with depressive mothers may grow to possess physical and psychological problems in regards to children's emotional temperament (Doh, Kim, Choi, Kim., & Cho, 2012; Moon & Oh, 1995; Billing & Moss, 1983), and those children are also exposed to two to three times higher chance of developing depression compared to other children (Beardslee, Keller, Lavori, Staley, & Sacks, 1993). The effects of maternal depression on their children can be a direct influence on children's emotion just by its emotional tendency of depression and it can also influence indirectly through different paths, such as mothers' satisfaction level in marriage (Lee & Jin, 2015; Jung, 2003; Cummings, Davies., & Campbell, 2001). These previous studies emphasize

high relevance of child caring mothers' depressed tendency to children's emotional development and behavior (Dodge, 1990; Easterbrook, Biesecker, & Lyons-Ruth, 2000; Miller, 1995), to mothers' performance an attitude towards child caring, affecting children's emotional development (Moon & Oh, 1995; Civic & Holt, 2000; Downey & Coyne, 1990; Johnson, Cohen, Kasen., & Brook, 2006), and to mothers satisfaction level in marriage (Jeon & Kim, 2013; Cho & Chung, 2008). However, most of these studies exhibit analysis on one-way influence among child temperament, mother's depression, and marital satisfaction based on transversal data and the mutual causal relationship among each variable has been hardly verified.

In recent years, there is growth in studies focusing on influence between maternal depression and children's emotional temperament (Jang & Lee, 2014), and parents' marital satisfaction and children's temperament (Seo & Lee, 2013; Lee & Jin, 2015). These studies suggest relevance and emphasize mutual influence between the emotional temperament of young children and maternal depression, maternal depression and marital satisfaction, and between marital satisfaction and children's temperament. At this point, there is no study in terms of mutual dynamic relationship between the emotional temperament of young children, maternal depression, and marital satisfaction, such as the effect of these three variables on each other and the direction of the influence. In particular, it is even more so for the study of longitudinal analysis on mutual causal relationship between these variables. Therefore, this study aims to analyze the cross-correlation between three variables by using the longitudinal data to verify the effects of the autoregressive cross-lag between the young children's emotional temperament, maternal depression, and mothers' marital satisfaction.

Autoregressive cross-lagged modeling is useful for determining the direction of causal relationship between variables by using longitudinal data and it is appropriate model to demonstrate causal relationship between measured variables according to changes in time under the condition of controlled measurement error (Hong, Park., & Kim, 2007; Finkel, 1995). This research is significant for it reveals the structural causality between the emotional temperament of young children, maternal depression, and marital satisfaction. The research questions set for this purpose are as following.

Research questions 1. Do the children's emotional temperament, maternal depression, and marital satisfaction remain stable over time?

Research questions 2. What is the complementary causal relationship between young children's emotional temperament, maternal depression, and marital satisfaction?

Ⅱ. Methods

1. Subjects

The objects of the analysis in study are three-year data from the 3rd to 5th year of the Panel Study on Korean Children(PSKC). The subjects were 1,802 households in the 3rd year, 1,754 households in the 4th year, and 1,703 households in the 5th year collected by KICCE, which were collected based on Stratified random sampling. The mean age of the fathers was 37.26 years($SD = 3.97$), the mean age of the mothers was 34.79 years($SD = 3.70$), the length of marriage was 7.94 years($SD = 3.26$), the mean age of the children was 51.89 months($SD = 1.24$), and the sex of the children was 51.1% boys(870 children) and 48.9% girls(833 children).

2. Research Tools

1) Emotionality evaluation tools

The children's emotional temperament test was conducted using the scale of the EAS (Emotionality, Activity and Sociability-Temperament Survey for Children-Parental Ratings) of Buss and Plomin(1984). Emotionality is a 5-point Likert scale of 5 questionnaires and the higher the score indicates the more negative emotions the child has. The internal consistency reliability(*Cronbach' α*) of emotional temperament was .73 in the 3rd year, .73 in the 4th year, and .75 in the fifth year.

2) Maternal depression scale

The maternal depression test was carried out using a scale(K6) developed by Kessler, Andrew, Cople, Hiripi, Mroczek, Normand, Walters., & Zaslavsky(2002) and modified by the Korean child panel researchers. This scale is a Likert 5-point scale of 6 questionnaires and the combined score between 6 and 13 is normal, between 14 and 18 is mild/severe depression, between 19 and 30 is categorized severe depression. The internal consistency reliability of maternal depression(Cronbach' α) was .91 in the 3rd year, .91 in the 4th year, and .92 in the 5th year.

3) Mothers' marital satisfaction scale

The mothers' marital satisfaction test was conducted using KMSS (Kansas Marital Satisfaction Scale) developed by Schumm, Nicols, Schectman, and Grigsby(1983) and first modified by Chung(2004) followed by another modification by the Korean child panel researchers. This scale is a

Likert 5 scale of 4 questionnaires and the higher the score indicates the higher degree of marital satisfaction perceived by the mother. The internal consistency reliability of the mothers' marital satisfaction(Cronbach' α) was .92 in the 3rd year, .91 in the 4th year and .93 in the 5th year.

3. Data Analysis

The data analysis of this study is as follows. First, analysis on technical statistics of key variables and the correlation between variables were conducted. Second, the autoregressive cross-lagged model(ARCL) was used for verification on the effects of both self-efficacy and relativity effect within the relationship between variables. Data were analyzed using SPSS 21.0 and AMOS 18.0 programs. Measurement identity, path identity, error covariance identity were verified consecutively according to the analysis process, and the Full information maximum likelihood (FIML) was used as an estimation method in order to solve the problem of missing values. To verify the multivariate normality distribution of the data, the value of the kurtosis and kurtosis were confirmed according to the set standard (Kline, 2005; West, Finch., & Curran, 1995). In addition, the level of adequacy of the study model was confirmed by the χ^2 value, the absolute fit index RMSEA, and the median fit index CFI and TLI value. The results of this confirmation recognized the respectable adequacy level would be higher than .90 fit index level for CFI and TLI and lower than .05 for RMSEA (Browne & Cudeck, 1993; Hu & Bentler, 1999). On another note, the questionnaires for emotional temperament of young children and maternal depression were grouped in order to eliminate the errors that could lead to a large increase in the rejection probability (Russell, Kahn, Spoth., & Altmaier, 1998) with many measurement variables.

Ⅲ. Results

1. The Descriptive Statistics and Correlation Analysis of Major variables

The emotional temperament of young children, maternal depression, and mothers' marital satisfaction were analyzed statistically and correlated and the results are as shown in Table 1 below.

According to the Table 1, the emotional temperament of young children showed a moderate degree (M = 2.84, 2.87, 2.80) over the three-year period, maternal depression showed low tendency (M = 1.97, 1.98, 2.0), and marital satisfaction level was above average (M = 3.85, 3.74, 3.68). As a result of the correlation analysis, the correlation between the major variables showed

not only the same measurement time, but also statistically significant correlation from all point of views over the three-year period. However, these correlation coefficients showed high values among the same measurement variables at each time point, but the correlation coefficient between the measurement variables along with the change of time showed low values. The mean, standard deviation, kurtosis, and kurtosis of each variable in the three-year period data were checked to see if the analysis data of this study satisfied the normal distribution hypothesis. As a result of checking the kurtosis and kurtosis of 30 measurement variables, the range of kurtosis was between .05 and 1.03, and the range of kurtosis was between .01 and 1.51, satisfying all the reference values (Kline, 2005) that assume the conditions of the normal distribution.

Table 1. Descriptive statistics and correlation analysis of the major variables

	1	2	3	4	5	6	7	8	9
1	1								
2	.529***	1							
3	.495***	.573***	1						
4	.279***	.243***	.248***	1					
5	.166***	.260***	.243***	.523***	1				
6	.220***	.227***	.317***	.505***	.563***	1			
7	-.100***	-.091***	-.070***	-.323***	-.234***	-.209***	1		
8	-.083***	-.117***	-.095***	-.264***	-.404***	-.264***	.525***	1	
9	-.116***	-.132***	-.149***	-.245***	-.296	-.349***	.475***	.580***	1
M	2.84	2.87	2.80	1.97	1.98	2.00	3.85	3.74	3.68
SD	.61	.62	.64	.70	.75	.75	.77	.73	.76
Skew	.22	.22	.17	.53	.68	.72	-.74	-.66	-.82
Kurt	.12	.03	.08	.20	.43	.54	.81	.64	1.10

*p < .05, **p < .01, ***p < .001

1: the emotional temperament of young children in the 3rd year, 2: the emotional temperament of young children in the 4th year, 3: the emotional temperament of young children in the 5th year, 4: maternal depression in the 3rd year, 5: maternal depression in the 4th year, 6: maternal depression in 5th year, 7: mothers' marital satisfaction in the 3rd year, 8: mothers' marital satisfaction in 4th year, 9: mothers' marital satisfaction in the 5th year.

2. Verification of autoregressive cross-lagged effect among emotional temperament, maternal depression, and marital satisfaction

1) Model design

In order to examine the longitudinal relationship between emotional temperament of young children(EM), maternal depression(MD), and mothers' marital satisfaction(MMS) by applying the autoregressive cross-lagged model, the model was set up as shown in Figure 1 below, and compared each other's internal competition models sequentially.
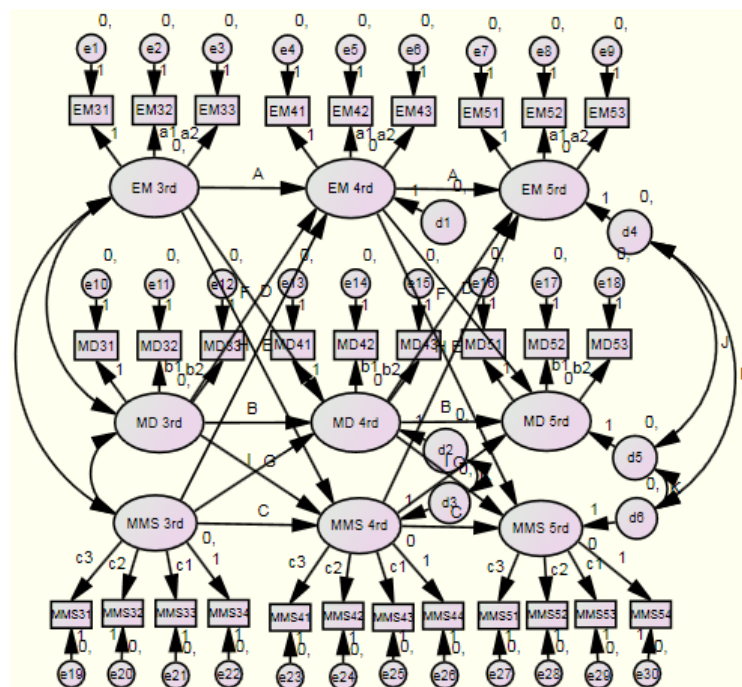

Figure 1. Autoregressive cross-lagged model between emotional temperament, maternal depression, and marital satisfaction

In order to select the optimal model, the basic model, measurement identity, path identity (path identity to the autoregressive coefficients and path identity to the cross-regression coefficients) and error covariance identity were verified and 19 competition models were set up based on this verification. In the process of verifying autoregressive cross-lagged model in Figure 1, the covariance verification between error terms in Model 2, Model 3, and Model 4 among the basic models was implemented. This is because the covariance between error terms that are not allowed in the analysis of structural equations using cross-sectional data is allowed when using longitudinal data

(Pitts, West, & Tein, 1996). Figure 1 is model for analyzing the mutual causal relationship among the Three variables collected at each time point the 3rd, 4th and 5th year sand more comprehensive route for the model is as shown in Figure 2. Models 2, 3, and 4 are measurement variables with error covariance added to them(error covariance in Figure 1) and these models assume that there is a correlation between variables when the same measurement variables are repeatedly measured over time. As for following models, they are under equality constraint: models 5, 6, and 7 for factorial placement of each potential variable(A1, a2, b1, b2, c1, c2, and c3 in Figure 1), models 8, 9, and 10 for autoregressive coefficient of each latent variable(A, B, C in Figure 1), models 11~16 for cross-regression coefficient between each potential variable(D~I in Figure 1), models 17~19 for residual covariance between each latent variable(J, K, L in Figure 1).

2) Qualification verification

In this study, we conducted the process of verifying the fitness of the autoregressive cross-lagged delay model through the sequential comparison of the competition models. The process of selecting the final model by using the fit index was conducted by using the cross-model comparison test and the CFI difference test(Cheung & Rensvold, 2002) and the fitness index of the final model was used as the evaluation criterion of the good fit model based on the evaluation criteria of TLI value, CFI value, and RMSEA value(Hu & Bentler, 1999). Looking at this more closely, first, the difference test of $\chi 2$ was used to compare the models and the CFI difference test was used to confirm that the $\chi 2$ difference test is sensitive to the size of the sample. To verify this, the sequential comparison of the competition models was verified by confirming whether the difference in CFI value(ΔCFI) is greater than .01 according to the identity establishment criterion proposed by Cheung and Rensvold(2002). Also, it has been evaluated as superior fir model when the TLI and the CFI values of the final selected model are over .90 and the RMSEA value is less than .05(Goodbye, 2007, 2009; Hu & Bentler, 1999). The fit of model 2 with the covariance between the measurement variance errors of emotional temperament in Model 1 was $\chi 2$ (df = 376) = 643.351, p <.001, TLI = .932, CFI = .945, RMSEA = .051 (90% Confidence interval = .049 ~ .053), indicating higher fit level compared to that of the Model 1. The fit of model 3 with the covariance between the measurement variance errors of maternal depression was $\chi 2$ (df = 366) = 254.454, p <.001, TLI = .938, CFI = .951, RMSEA = .048 (90% Confidence interval = .046~.050), indicating higher fit level compared to that of the Model 2. Also, the fit of model 4 with the covariance between the measurement variance errors of marital satisfaction in Model 3 was χ^2(df=354)=901.889, p<.001, TLI=.967, CFI=.975, RMSEA=.035(90% Confidence interval = .033~.037)), indicating higher fit level compared to that of the Model 3.

Next, the difference in χ2 value ($\triangle$ χ2 (df = 4) = 10.606, p <.05) between the Model 5 and 4, as well as the difference in χ2 value ($\triangle\chi^2(df=4)=195.428$, $p<.001$) between the Model 6 and 5, in which the factor loadings of the emotional temperament variables of young children were equally constrained over time according to the assumption of measurement equality, are statistically significant, whereas the difference in CFI values do not exceed .01, and as for the difference in χ2 value ($\triangle\chi^2(df=2)=9.718$, $p>.05$) between the Model 7 and 6, while it is not statistically significant, the difference in CFI value also do not exceed .01, indicating that time measurement identity is established.

On the other hand, autogenous regression path identities and crossed regression path identities were examined consecutively in order to verify the path identity. As a result, the difference in χ2 value ($\triangle\chi^2(df=1)=3.281$, $p>.05$) between the Model 8, which has the same restriction on the autoregressive coefficient of the emotional temperament of young children according to the assumption of path identity to the autoregressive coefficient, and the Model 7 with measurement identity is not statistically significant and the difference in χ2 value ($\triangle\chi^2(df=1)=49.147$, $p<.001$) between the Model 9 and 8, in which the autoregressive coefficients of mother depression are the same with respect to time, as well as the difference in χ2 value ($\triangle\chi^2(df=1)=8.400$, $p<.01$) between the Model 10 and 9 with the same restriction on the autoregression coefficients of mothers' marital satisfaction over time are statistically significant, whereas the CFI value does not exceed .01, establishing all path identity of autoregressive coefficients over time. In addition, the path identity to the cross-over regression coefficients shows that the difference in χ2 value ($\triangle\chi^2(df=1)=.022$, $p>.05$) between the Model 11, in which constraint was put on the cross-regression coefficient between emotional temperament and maternal depression, and the Model 10 of autoregressive coefficient path identity, the difference in χ2 value ($\triangle\chi^2(df=1)=2.647$, $p>.05$) between the Model 12 and Model 11, in which constraint was put on the cross-regression coefficient between emotional temperament and mothers' marital satisfaction, the difference in χ2 value ($\triangle\chi^2(df=1)$ =.765, $p>.05$) between the Model 14 and 13, and the difference in χ2 value ($\triangle\chi^2(df=1)=1.011$, $p>.05$) between the Model 15 and 14 are not statistically significant, while the CFI values do not exceed .01, indicating establishing all path identity of cross-over regression coefficients over time. Also, the difference in χ2 value ($\triangle\chi^2(df=1)=15.434$, $p<.001$) between the Model 16 and 15 is statistically significant, but the CFI value do not exceed .01, showing that identity of the crossing path coefficient over time is satisfied.

Finally, the difference in χ2 value ($\triangle$ χ2 (df = 1) = 78030, p <.001) between the model 17 and the pathway model 16, in which the error covariance between infantile emotional temperament and maternal depression is equally restricted, the difference in the χ2 values ($\triangle$ χ2 (df = 1) =

227.234, p <.001) between the model 18 and 17, in which the error covariance between mothers; marital satisfaction is equally restricted, are statistically significant but the CFI values do not exceed. .01, and the χ2 values(△ χ2 (df = 0) = 8.485, p> .05) between the model 19 and 18, in which the error covariance between the maternal depression and the mothers' marital satisfaction is equally restricted, is not statistically significant and the CFI value do not exceed .01. Therefore, model 19 was selected as the final model because it was determined that the error covariance over time of the young children's emotional temperament, maternal depression, and mothers' marital satisfaction were equal. The final Model 19 with .970 in the TLI value, .976 in the CFI value, and .033 in RMSEA value can be said a superior fit model for its TLI and CFI value are over .90 and its RMSEA value is below .05. As mentioned above, the measurement identity from Model 5 to 7, the path identity to the autoregressive coefficients from Model 8 to 10, the path identity to the cross-regression coefficients from Model 11 to 16, and the error covariance identity from Model 17 to 19 have been established, therefore, it can be said that the autoregressive cross-lagged delay model among young children's emotional temperament, maternal depression, and mothers' marital satisfaction are appropriate for the data from the 3rd to 5th years of the Korean children's panel.

3) Estimation of the structural coefficient of the final model

Based on the estimation results, this study investigated if young children's emotional temperament, maternal depression, and mothers' marital satisfaction of the research question 1 stayed stable as time passed. Also, the path coefficient from the result of estimation of the structure coefficient of the Model 19, the final model, is analyzed. Young children's emotional temperament, maternal depression, and mothers' marital satisfaction were each found to have statistically significant impacts throughout all points of 3rd, 4th, and 5th years.

Next, this study investigated the differences appearing within the complementary causal relationship between young children's emotional temperament, maternal depression, and mothers' marital satisfaction in research question 2 according to the time course. As shown in Figure 2, young children's emotional temperament from previous time point was found to have a significant impact on maternal depression(β=.088, β=.083, $p<$.001) and mothers' marital satisfaction (β=-.041, β=-.042, $p<$.05) from the later point in time according to the result of measuring crossed regression coefficients among young children's emotional temperament, maternal depression, and mothers' marital satisfaction. On the other hand, maternal depression from previous point in time was shown to have a statistically significant impact on both young children's emotional temperament(β=.056, β=.089, $p<$.001) and marital satisfaction from the later point in time(β=-.056, β=-.089, $p<$.001). Also, whereas mothers' marital satisfaction in previous time

point was shown to have no significant impact on young children's emotional temperament in later time point(β =-.002, β =-.002, p >.05), it showed a significant impact on maternal depression in later point in time(β =-.067, β =-.059, p <.001).
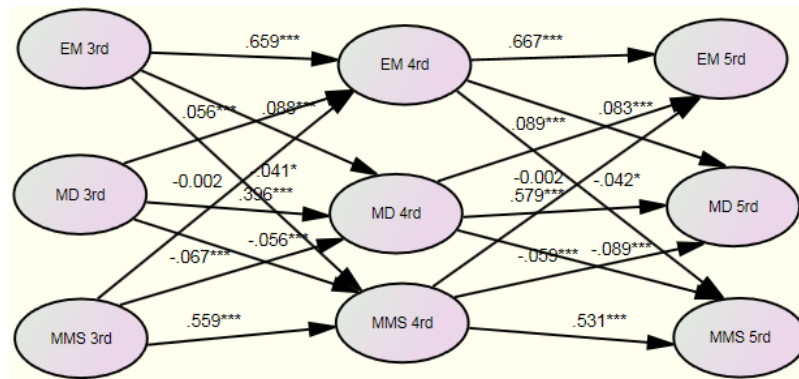

Figure 2. Path diagram of the final autoregressive cross-lagged model

Ⅳ. Discussion and Conclusion

Following is discussion centering on the research questions.

First, based on the analysis on how much the emotional temperament of young children, maternal depression, and mothers' marital satisfaction stayed stable over time, they proved to have stable tendency throughout 3rd, 4th, and 5th years of Korean Children's Panel. The young children's emotional temperament, maternal depression, and mothers' marital satisfaction in previous time showed statistically significant effect on the young children's emotional temperament, maternal depression, and marital satisfaction at the next time point. This means that despite 3 years have passed, the young children's emotional temperament, maternal depression, and mothers' marital satisfaction show stability. Such result is in line with previous studies unveiling the stability of depression of mothers with negative temperament and stress from child caring, fathers' participation in child caring and marital satisfaction, and young children's emotional temperament (Jang & Lee, 2014; Yeao, Choi., & Yoon, 2015; Buss & Plomin, 1984; Bates, 1989; Mehall, Eisenberg, Spinrad., & Gaertner, 2009; Sanson, Hemphill., & Smart, 2004). This suggests that it is necessary to search for various variables to reduce negative emotional temperament and to improve the positive emotional temperament of young children.

Second, this study verified the complementary causality among the emotional temperament of

young children, maternal depression, and mothers' marital satisfaction over time. First, the emotional temperament of young children was found to have a direct effect on maternal depression and marital satisfaction. However, there is not much research done on the relationship between young children's temperament and mothers' marital satisfaction in South Korea. Therefore, the result of this study indicating that there is a high possibility of emotional temperament of young children acting as a direct causal factor for maternal depression and marital satisfaction suggest the need for development of a more concrete and systematic program for promoting positive emotional temperament of young children and toddlers centering on the infant child care and the educational institution, as well as further studies on verifying the effects. Second, the maternal depression was found to have a direct influence on young children's emotional temperament and mothers' marital satisfaction. This implies that marital satisfaction gets high when maternal depression is low and marital satisfaction gets lower when maternal depression is high, and it suggests that causality is not temporary, but is continuous and stable.

On the other hand, whereas mothers' marital satisfaction did not affect emotional temperament of young children, it showed a statistically significant negative influence on maternal depression. This suggests that while mothers' marital satisfaction does not have a direct influence on young children's emotional temperament, marital satisfaction of mothers with young children acts as a direct cause for their depression, consequently, higher marital satisfaction of mothers will result in lower depressive tendency. Therefore, such research topic investigated in this study calls for deeper analysis in the future for it is a very few longitudinal study verifying mutual influence between mothers' marital satisfaction and depression from current point of view.

In conclusion, first, young children's emotional temperament, maternal depression, and marital satisfaction show persistency and stability. Second, there is mutual causal relationship of two-way influence between young children's emotional temperament and maternal depression, and maternal depression and marital satisfaction.

Most previous studies emphasize that maternal depression is a direct variable that affects marital satisfaction as an independent variable, but this study shows mothers' marital satisfaction is also a direct variable that affects maternal depression. In short, young children's emotional temperament, maternal depression, and marital satisfaction can be causal variables mutually affecting each other directly and resultant variables at the same time, furthermore, such specificities stay comparatively continuous and stable throughout 3 years of time period. This suggests a lot for the Early Childhood Education institutions and Early Childhood Education in developing parents' education program to help improve positive temperament of child caregivers, not to mention parents.

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한글 요약

유아의 정서성 기질, 어머니의 우울, 결혼만족도 간의 관계:
자기회귀교차지연모형 효과 검증

양진희

　이 연구의 목적은 유아의 정서성 기질, 어머니의 우울, 그리고 어머니의 결혼만족도 사이의 종단적 상호인과관계를 밝히는데 있다. 이를 위하여 한국아동패널의 3차년도(2010년), 4차년도(2011년), 5차년도(2012년)의 3개년도 종단자료를 자기회귀교차지연모형을 적용하여 분석하였다. 주요결과는 다음과 같다. 첫째, 3~5차년도까지 세 시점에 걸쳐 유아의 정서성 기질, 어머니의 우울과 결혼만족도의 자기회귀계수를 측정한 결과, 이전 시점의 유아 정서성 기질, 어머니의 우울과 결혼만족도는 각각 이후 시점의 유아 정서성 기질, 어머니의 우울과 결혼만족도에 유의하게 영향을 미치는 것으로 나타났다. 둘째, 이전 시점의 유아 정서성 기질은 어머니의 우울과 결혼만족도, 이전 시점의 어머니 우울은 이후 시점의 유아 정서성 기질과 어머니의 결혼만족도에 지속적으로 유의한 영향을 미치는 것으로 나타났다. 한편, 이점 시점의 어머니의 결혼만족도는 이후 시점의 유아의 정서성 기질에는 유의한 영향을 미치지 않는 것으로 나타났으나, 어머니의 우울에는 지속적으로 부적으로 유의한 영향을 미치는 것으로 확인되었다. 이러한 결과는 유아의 정서성 기질이 어머니의 정서에 따라 다르게 평가될 수 있다는 것을 시사한다.

주제어 : 유아의 정서성 기질, 어머니의 우울, 결혼만족도, 자기회귀교차지연모형