

# Actor and Partner Effects of Parenting Stress and Co-parenting of Parents of Children with Atopic Dermatitis on Marital Conflict: Multiple-group Analysis Based on Mother's Employment Status

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## Research article

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## Abstract

**Objective** This study aims to determine the effect of parenting stress and co-parenting on marital conflict and the actor and partner effects of parental variables and to identify the control effect based on the mother's employment status. **Method** In this study, among all children who participated in the panel study and health questionnaire survey, 161 fathers and 161 mothers raising seven-year-old children recently treated for atopic dermatitis for 12 months were selected as the final study participants. **Results** The father's parenting stress had an actor and a partner effect on the co-parenting, and the mother's parenting stress had an actor and a partner effect on the co-parenting. The father's parenting stress only had an actor effect on the marital conflict ( $\beta = .32, p < .001$ ). The father's co-parenting had an actor ( $\beta = -.29, p < .001$ ) and a partner effect ( $\beta = -.22, p < .001$ ) on the marital conflict, and the mother's co-parenting had an actor ( $\beta = -.39, p < .001$ ) and a partner ( $\beta = -.19, p < .001$ ) effect on the marital conflict. There were statistically significant differences between two groups in terms of the path coefficient of the father's parenting stress affecting father's marital conflict, path coefficient of the father's co-parenting affecting father's marital conflict, and path coefficient of the mother's co-parenting affecting father's marital conflict. **Conclusions** This study is meaningful in providing basic data for the development of an atopic dermatitis family management program by investigating the actor and partner effects of parenting stress and co-parenting on marital conflict as well as the control effect based on the mother's employment status.

## Background

Atopic dermatitis (AD) is the most prevalent sustained chronic inflammation and pruritic skin disease, affecting many infants and children in industrialized countries[1]. In Korea, according to the Ministry of Health and Welfare's Korea Health Statistics, the prevalence of AD is steadily increasing at 2.4% in 2007, 3.3% in 2010, and 3.8% in 2015[2]. According to a survey on the prevalence of allergic diseases in Korea among 933,000 patients, AD was most prevalent in patients under 12 years with 48.6% followed by 12.7% in those between 13 and 19 years and 11.8% in those in their 20s, showing that patients are more commonly children and adolescents (<12 years) than other age groups[3]. In particular, the symptoms of AD peak between four and six years[4] and often develop into allergic rhinitis or asthma; therefore, continuous management is needed[5].

AD not only causes various physical issues but also leads to psychological problems; patients experience frequent skin damage and sleep disorder due to extreme pruritus[6] and show depression, anxiety, attention deficit, tiredness, irritable mood, and aggressive behavior[7]. Parents of children with AD must strictly manage AD in daily life, such as consistent skin moisturization, food preparation, and environmental management, as well as general childcare for each stage of the child's growth; therefore, in addition to the pain experienced by the child, the degree of parenting stress is relatively higher than with other diseases[8]. According to the results of a study conducted in Australia among mothers of children with AD[9], 46% of mothers of children attending hospital-based clinics experienced serious stress levels requiring professional counseling. As such, parents of children with AD experience psychological crises, such as guilt over AD, hopelessness at the inability to control AD symptoms, frustration about the

problems experienced by children, and exhaustion, as well as parenting stress due to long-term care as with other chronic illnesses, which negatively affects family functioning[10].

In a society in which childcare is mostly carried out by mothers, the physical symptoms of the child are a cause of condemnation and guilt for the mother, and these symptoms of the child and the parenting stress of the mother induce conflict between the husband and wife, which destroys the family function and has a negative effect on the recovery of the child's health[11]. Additionally, if the mother also works and has to balance work and family, then the level of stress is higher than for a stay-at-home mom, and the increase of the mother's parenting stress is associated with the increase of the father's parenting stress, also influencing marital conflict[12]. However, if both parents recognize parenting as a collective responsibility and actively participate, the parenting stress can be moderated with co-parenting and have a positive effect on the marital relationship in terms of raising children[13].

Additionally, in the co-parenting model proposed by Feinberg[14], it was reported that parenting stress affects co-parenting, and the degree of co-parenting affects the child's adaptation as well as marital adaptation. To help with management of children with AD, it is important to be interested in the child's health problems, but maintaining the function of the family, particularly between the husband and wife, by keeping an interest in the parenting stress and co-parenting could be an effective way to increase the recovery of children with AD. However, previous studies related to children with AD examined the effect of self-efficacy of the parents and satisfaction of the marital relationship on children's behavior[15], the effect of self-efficacy of the mother on the family management[16], and sleep disorder in parents raising children with AD[17], so there is limited research that comprehensively approaches children with AD and parents. In particular, considering that children are highly dependent on parents due to the nature of the disease, studies that investigate the parental variables at the same time are necessary for the management of atopic children.

Because parents are in an interdependent relationship, the Actor-Partner Interdependent Model (APIM) suggested by Kenny[18] is recommended for analyzing the interrelation between parent-related variables, and this study also applied the APIM model to identify the effects of parenting stress and co-parenting on marital conflict among parents with children with AD. For the couple data, the mutual dynamics of the couple was not reviewed when using individual data. Even if the data were collected from both members of the couple, analyzing such interdependent data individually as independent data, it violates the main hypothesis of reasoning statistics, resulting in low calculation of standard error and a possibility of committing a Type 1 error. Thus, such interdependent couple data must be analyzed by applying APIM[18]. In particular, marital conflict is a result of interaction between parents, so it is necessary to determine the effects of parenting stress and co-parenting instead of analyzing the mother and father individually.

Therefore, the present study aims to determine the effect of parenting stress and co-parenting on marital conflict and the actor and partner effects of parental variables and to identify the control effect based on

the mother's employment status to provide basic data for the development of an AD family management program.

## Methods

### Study design

This is a cross-sectional descriptive study to investigate the actor and partner effects of parenting stress and co-parenting on marital conflicts and the differences between groups according to the mothers' employment status utilizing the 8th Panel Study on Korean Children [Figure 1].

### Study Participants

The present study included parents above the age of 19 years and their children who participated in the 8th Panel Study on Korean Children (2015). The Panel Study on Korean Children is a review of the newborns born in 2008 and their mothers and community environment, for which the data up to 8th survey have been released to the public. The Panel Study on Korean Children conducted by Korea Institute of Child Care and Education included all households of newborns born between April and July 2008, excluding those who were excluded from the survey and who refused to participate, from surveyed medical institutes with more than 500 or more annual births per year. The exclusion criteria of the newborn household were mothers who cannot communicate in Korean, mothers with poor health after giving birth, newborns with serious diseases, mothers with serious diseases, newborns awaiting adoption, multiple births, and mothers younger than 18 years old. The Panel Study on Korean Children recruited a pilot sample of 2,563 households, from which 2,150 newborn households were selected as the final sample. For the sampling of the Panel Study on Korean Children, a stratified multistage sampling method was applied; the first stage included selecting medical institutes where childbirth occurs, the second stage included extracting newborn households with newborns born in selected medical institutes as a pilot sample, and the third stage included establishing a sample from the pilot sample with households who wish to participate in the panel. The sample retention rate proposed by the Panel Study on Korean Children's research team for the validity of this study sample was determined to be 74.3% for the 8th-panel survey. In this study, among all children who participated in the panel study and health questionnaire survey, 161 fathers and 161 mothers raising seven-year-old children recently treated for AD for 12 months were selected as the final study participants. In the structural equation model, the minimum recommendation for the sample size is 10 times the free parameter, and the ideal size is 150–400 participants, so 161 participants in this study constituted a sufficient sample size to analyze actor and partner effects using the structural equation model.

### Measurement

In the study, the validity of the tool was confirmed through confirmatory factor analysis. Convergent validity was confirmed to be greater than .50 for each factor loading, greater than .70 for construct reliability, and greater than .50 for average variance extracted, and discriminant validity was found to be valid when the AVE (averaged variance extracted) values of the different latent variables were greater than the square of the correlation coefficient between the latent variables.

### ***Parenting stress***

For the parenting stress survey, “burden and distress from carrying out parents’ role” among the subfactors of the parenting stress scale developed by Kim and Kang [19] was extracted by the Panel Study on Korean Children’s research team, and a tool with 11 questions confirmed through a preliminary survey from 2007 was used. A total of 11 questions were based on a five-point scale, and higher scores signify high parenting stress. For the reliability of the tool in the study by Kim and Kang [19], Cronbach’s alpha was .86. For the reliability of the tool in this study, Cronbach’s alpha was .88 for the father and .90 for the mother. As a result of the confirmatory factor analysis, goodness of fit of the father’s parenting stress model was Chi square ( $\chi^2$ ) = 26.24, degrees of freedom (df) = 24, Goodness of Fit Index (GFI) = .93, Adjusted GFI (AGFI) = .90, Normed Fit Index (NFI) = .92, Comparative Fit Index (CFI) = .94, Standardized Root Mean Square Residual (SRMR) = .03, Root Mean Squared Error of Approximation (RMSEA) = .02 with Critical Ratio (CR) = .92, AVE = .61. The goodness of fit of the mother’s parenting stress model was  $\chi^2$  = 70.49, df = 24, GFI = .93, AGFI = .90, NFI = .92, CFI = .94, SRMR = .04, RMSEA = .05 with CR = .91, AVE = .60.

### ***Co-parenting***

For the co-parenting survey, the measurement tool developed by Mchale [20] was translated by the Panel Study on Korean Children’s research team, and a total of 16 questions (four subcategories: family unity, discipline, criticism, conflict), which underwent the preliminary survey, were selected based on a seven-point scale. Higher sum of scores signifies a high level of co-parenting. In Mchale’s study [20], the reliability of the tool was Cronbach’s alpha .59–.82, and, in this study, Cronbach’s alpha was .88 for the father and .86 for the mother. As a result of the confirmatory factor analysis, goodness of fit of the father’s co-parenting model was  $\chi^2$  = 34.23, df = 21, GFI = .95, AGFI = .91, NFI = .94, CFI = .96, SRMR = .04, RMSEA = .05 with CR = .83, AVE = .61. The goodness of fit of the mother’s co-parenting model was  $\chi^2$  = 31.13, df = 21, GFI = .97, AGFI = .92, NFI = .97, CFI = .98, SRMR = .05, RMSEA = .06 with CR = .86, AVE = .60.

### ***Marital conflict***

For marital conflict, the measurement tool developed by Markman et al. [21] was translated and revised by the Panel Study on Korean Children's research team, composed of a total of eight questions based on a five-point scale. The reliability of the tool in this study is as follows. Cronbach's alpha for the father was .91, and that of the mother was .93. As a result of the confirmatory factor analysis, goodness of fit of the father's marital conflict model was  $\chi^2 = 49.55$ ,  $df = 20$ , GFI = .93, AGFI = .90, NFI = .94, CFI = .96, SRMR = .02, RMSEA = .03 with CR = .94, AVE = .67. The goodness of fit of the mother's marital conflict model was  $\chi^2 = 56.32$ ,  $df = 20$ , GFI = .92, AGFI = .90, NFI = .95, CFI = .97, SRMR = .03, RMSEA = .04 with CR = .94, AVE = .66.

## **Ethical considerations**

The 8th Panel Study on Korean Children was approved by the institutional review board of the Korea Institute of Child Care and Education (IRB No. KICCEIRB-2015-03). The current work was also conducted after review by the Institutional Review Board of C University.

## **Data collection and analysis**

The data were obtained from the website of the Panel Study on Korean Children (<http://panel.kicce.re.kr/kor/publication/02.jsp>). For the use of Panel Study on Korean Children's data, the study protocol was submitted to the Panel Study on Korean Children's research team and reviewed. After obtaining the approval to use the 8th Panel Study on Korean Children's data, the corresponding data were downloaded. The collected data were analyzed using SPSS-WIN Version 20.0 and AMOS Version 20.0 programs. The descriptive statistics of SPSS were used for the participants' general characteristics and descriptive statistics of the measurement variables, the skewness and kurtosis of the measurement variables were verified for the normality of the data, and AMOS was used to confirm multivariate normality. In addition, the correlations and multicollinearity of each construct and the measurement variables were confirmed by Pearson's correlation coefficient, and the reliability of the tool was confirmed by Cronbach's alpha coefficient. To confirm the actor and partner effects of parenting stress and co-parenting on marital conflict, the AMOS structural equation model was used. Furthermore, measurement invariance was conducted to confirm the homogeneity of the father and mother's data within one measurement tool. To verify the goodness of fit of this study's model, maximum likelihood method was used, and confirmatory factor analysis was used to confirm the validity of latent variables for model analysis. For the goodness of fit of the model, the absolute fit indices of  $\chi^2$ ,  $\chi^2/df$ , RMSEA, SRMR, GFI, AGFI, CFI, NFI and Tucker-Lewis Index (TLI) were used. Direct effect, indirect effect, and statistical significance of total effect were confirmed using bootstrapping. To test the structural model invariance across the groups, an analysis technique that examines the difference in path coefficients between measurement models was used to compare the critical ratios of the free and constrained models.

# Results

## General participant characteristics

In terms of the residential areas of the participants, 62 lived in large cities (38.5%), 69 lived in towns (42.9%), and 30 lived in small and medium-size cities. The mean age of the fathers was 40.5 years old while that of the mothers was 37.9 years old. In terms of education, 81 fathers (50.3%) had a bachelor's degree, and 70 mothers (43.5%) had a bachelor's degree. As for occupation, 69 (42.9%) of the fathers were managers and office workers. For mothers, 66 (41.0%) were employed, and 95 (59.0%) were unemployed. As for the occupation of the working mothers, 48 (29.8%) mothers were also managers and office workers. The mean household income was 471.5 million won. In terms of the sex of the children, 93 (57.8%) were boys, and 68 (42.2%) were girls. For the first time of diagnosis of AD in children, 49 (30.4%) were diagnosed within 12 months of birth, 53 (32.9%) between 15 and 35 months, 32 (19.9%) between 3 and 4 years old, and 27 (16.7%) after 5 years old.

## Descriptive statistics of measurement variables

The mean parenting stress score of the fathers was 1.9 points, and that of the mothers was 2.3 points. The mean co-parenting score of the fathers was 5.2 points, and that of the mothers was 5.4 points. The mean marital conflict score of the fathers was 1.9 points, and that of the mothers was 2.1 points. For each measurement variable, the absolute value of skewness (-0.65 to 0.81) did not exceed 2, and the absolute value of the kurtosis (-0.17 to 1.15) did not exceed 4 [Table 1].

## Correlation between measurement variables

Each measurement variable showed a statistically significant correlation at the significance level of .05, and the absolute value of the correlation between the variables did not exceed .8, confirming that there was no problem of multicollinearity [Table 1].

## Verification of measurement invariance of measurement variables

To verify the homogeneity of the father and mother's data within one measurement tool, four competing models were compared. The first model is the baseline model, the second constrains the factor loading, the third constrains the covariance of the error, and the fourth constrains the factor loading and covariance of the error. In this study, the results of  $\chi^2$  and TLI, CFI, RMSEA, which are not sensitive to the number of cases, confirmed measurement invariance [Table 2].

## Actor and partner effect of parenting stress and co-parenting on marital conflict

To verify the effects of parenting stress and co-parenting on marital conflict, the normality of the measurement variables was investigated. The univariate normality of each measurement variable satisfied the normal distribution condition by showing the absolute value of the skewness and the kurtosis ranging less than 2, but multivariate normality was not satisfied at the significance level of .05 with multivariate index = 4.10 and CR = 6.10. If multivariate normality is not satisfied, there may be a problem of upward biasing the threshold when estimating the parameters. However, even if the multivariate normality is not assumed, it is reported that the estimated parameter is reliable when using the maximum likelihood method and when the sample size is 120 or greater. Therefore, the model was estimated without converting the data. The goodness of fit of the hypothetical model was evaluated with GFI, AGF, CFI, NFI, TLI, RMSEA, and SRMR, where the goodness of fit of the model is interpreted to be favorable when GFI, AGFI, CFI, NFI, and TLI are greater than 0.9. The fit of the model is considered good if RMSEA and SRMR are less than 0.05, fair when less than 0.10, and low when greater than 0.10. Among the demographic characteristics reported as the factors affecting parenting stress using the maximum likelihood method, age, educational background, household income, sex of the child, and AD diagnosis period presented in this study were used as the control variables to conduct a hypothetical model test, which was confirmed as the model with appropriate goodness of fit with  $\chi^2 = 15.59$ ,  $df = 10$ , RMSEA = .02, SRMR = .04, GFI = .95, AGFI = .94, CFI = .97, NFI = .97, TLI = .96. Nine out of a total of 12 hypotheses were selected [Table 3]. The father's parenting stress had an actor effect ( $\beta = -.46$ ,  $p < .001$ ) on co-parenting and a partner effect ( $\beta = -.22$ ,  $p < .001$ ) on the mother's co-parenting, and the mother's parenting stress had an actor effect ( $\beta = -.36$ ,  $p < .001$ ) on the mother's co-parenting and a partner effect ( $\beta = -.20$ ,  $p < .001$ ) on the father's co-parenting. The father's parenting stress only had an actor effect ( $\beta = .32$ ,  $p < .001$ ) on the father's marital conflict. The father's co-parenting had an actor effect ( $\beta = -.29$ ,  $p < .001$ ) on the father's marital conflict and a partner effect ( $\beta = -.22$ ,  $p < .001$ ) on the mother's marital conflict, and the mother's co-parenting had a partner effect ( $\beta = -.19$ ,  $p < .001$ ) on the father's marital conflict and an actor effect ( $\beta = -.39$ ,  $p < .001$ ) on the mother's marital conflict [Table 3]. In addition, the father's parenting stress ( $\beta = .17$ ,  $p = .004$ ) had an indirect effect on the father's marital conflict, and the father's parenting stress had an indirect effect on the mother's marital conflict ( $\beta = .04$ ,  $p = .005$ ), but the total effect ( $\beta = .16$ ,  $p = .269$ ) of the father's parenting stress on the mother's marital conflict was not statistically significant. The mother's parenting stress had an indirect effect on the father's ( $\beta = .07$ ,  $p = .005$ ) and mother's ( $\beta = .18$ ,  $p = .003$ ) marital conflict.

## Multiple group analysis according to the mother's employment status

To confirm the significant difference of the intergroup path coefficients, the critical ratio for difference of free and constrained models between 12 paths in the study model was confirmed. As a result, there were statistically significant differences between two groups in terms of the path coefficient (critical ratio for difference = -2.408) of the father's parenting stress affecting father's marital conflict, path coefficient

(critical ratio for difference = 2.753) of the father's co-parenting affecting father's marital conflict, and path coefficient (critical ratio for difference = 2.952) of the mother's co-parenting affecting father's marital conflict [Table 4].

## Discussion

This study aimed to identify the actor and partner effects of parenting stress and co-parenting on marital conflicts in parents raising children with AD and to further discuss the differences between groups based on the mother's employment status.

First, the parenting stress of the fathers and mothers of children with AD had actor and partner effects on both parents' co-parenting. The results of this study are similar to the findings of May et al.[13] and Feinberg[14] who reported parenting stress to affect co-parenting based on the co-parenting model conducted in parents of children with autism.

Such results show that co-parenting is a process in which couples discuss the principles of child-raising and sharing of the burden of child-raising and cooperate with each other[22], where, as the husband and wife are more affectionate and supportive in relation to each other, parents are not only confident in their parental role but cooperate well together while the couple's intimacy and reliability decrease as blame and conflict increase when parenting stress is exchanged between the parents[20], resulting in decreased motivation for co-parenting. Therefore, considering that the parents of children with AD have a higher level of parenting stress than the parents of children with other chronic diseases, medical professionals might seek and apply interventions that can reduce parenting stress in addition to improving physical symptoms of the children as an effective way to achieve physical and emotional stability of the child.

Second, it was found that marital conflicts perceived by the fathers of children with AD were influenced by the actor effect of father's parenting stress and co-parenting and partner effect of mother's co-parenting. As reported in a previous study on marital conflict and parenting[23], marital conflicts increase when a couple perceives that they have not been able to get help and cooperation from their spouses while raising their children; the degree of the father's perceived marital conflict increases if the father of the child with AD believes that he did not get much help from the mother for parenting. As it was confirmed in previous studies that marital conflicts are associated with child's internal and external problem behaviors[23,24] and affect the restoration of health in a child with AD, there is a need for medical professionals to approach with more interest in the marital conflicts that are perceived by the father of children with AD, and it is necessary to approach the degree of mother's participation in parenting and the attitude toward co-parenting at the same time to reduce the degree of marital conflict experienced by the father.

Third, the marital conflict perceived by the mothers of children with AD was affected by the actor effect of the mother's co-parenting and the partner effect of the father's co-parenting. Such results are similar to the study results by Feinberg [14], who reported that the co-parenting of the parents had a positive effect on the adaptation between husband and wife. For parents who raise children, marital relationship is

closely related to the process of raising children, and, in particular, the results of a study[24] reporting that children are more likely to be affected by their father's emotional and behavioral status than their mother's suggest the importance of the father's co-parenting in raising children with AD. In addition, the mother could become dependent on the father in the process of raising the child; during this process, mothers tend to underestimate the quality of their marital relationship if they perceive the father's level of parental involvement to be low. Therefore, to lower the degree of marital conflict perceived by the mothers of children with AD, it is necessary to confirm the attitude and degree of father's co-parenting in addition to positively increasing the attitude and degree of mother's co-parenting.

Fourth, parents' parenting stress had an indirect effect on the marital conflict perceived by the father while mother's parenting stress had an indirect effect on the marital conflict perceived by the mother. Mothers are usually the primary caregiver of children with AD, and, because they feel great burden[9], active intervention for the parenting stress of the mothers of children with AD could be an important factor in reducing marital conflict. In addition, in the path analysis according to the employment status of the mothers, there were significant differences among the groups in the path of father's parenting stress to marital conflict of the father, the path of father's co-parenting to marital conflict of the father, and the path of mother's co-parenting to marital conflict of the father. Such study results indicate that, when the mother is employed, the proportion of father's role in parenting is relatively high, where the degree of parenting stress perceived by the father affects co-parenting, resulting in establishing the relationship of affecting marital conflict. Therefore, there is a need for planning and approaching a distinctive intervention plan for the father's parenting stress and co-parenting among parents of children with AD with employed mothers. Meanwhile, if the mother is a stay-at-home mother, the key factor that affects father's marital conflict was confirmed to be the mother's co-parenting, and, thus, it is also important to approach with a lot of interest in the intervention plan based on this.

## Conclusion

The study is meaningful in providing basic data for the development of an AD family management program by investigating the actor and partner effects of parenting stress and co-parenting on marital conflict as well as the control effect based on the mother's employment status. A follow-up study is suggested to develop a family management program for children with AD considering actor and partner effects of parenting stress, co-parenting, and marital conflicts and to further verify the effects. In addition, parenting stress may appear distinctively according to the severity of symptoms in children with AD, so it is necessary to grasp these relationships, and follow-up studies are needed to identify various factors to alleviate stress.

## Abbreviations

AD:Atopic dermatitis; CFI:Comparative Fit Index ; CR:Critical Ratio; df:degrees of freedom; GFI :Goodness of Fit Index; NFI :Normed Fit Index; RMSEA:Root Mean Squared Error of Approximation; SRMR:Standardized Root Mean Square Residual

# Declarations

## Acknowledgements

Not applicable.

## Ethics approval and consent to participate

This study utilizes secondary data. The 10<sup>th</sup> Korean Children Panel Survey was conducted after a review by the Institutional Review Board of KICCE; the parents provided written consent to their children's participation in the panel survey. The current work was also conducted after review by the Institutional Review Board of C University (1040271-201811-HR-030).

## Consent for publication

Not applicable.

## Availability of data and materials

Not applicable.

## Competing interests

The authors declare that they have no competing interests.

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Not applicable.

## Authors' contributions

HJW developed a hypothesis, searched the literature, reviewed the relevant articles, analyzed the data, interpreted the findings, and wrote a manuscript. LH developed the hypothesis, reviewed the relevant article, and wrote the manuscript. All authors have read and approved the manuscript.

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## Tables

**Table 1. Correlation of the variables**

(N=161)

Variables	M±SD	X1	X2	X3	X4	X5	X6
		r(p)	r(p)	r(p)	r(p)	r(p)	r(p)
X1: Parenting stress (Father)	1.9±0.5	1					
X2: Parenting stress (Mother)	2.3±0.7	.33 (<.001)	1				
X3: Co-parenting (Father)	5.2±0.9	-.52 (<.001)	-.35 (<.001)	1			
X4: Co-parenting (Mother)	5.4±0.9	-.34 (<.001)	-.43 (<.001)	.50 (<.001)	1		
X5: Marital conflict (Father)	1.9±0.6	.52 (<.001)	.23 (.003)	-.53 (<.001)	-.41 (.017)	1	
X6: Marital conflict (Mother)	2.1±0.8	.32 (<.001)	.38 (<.001)	-.47 (.014)	-.56 (<.001)	.56 (<.001)	1

M=mean, SD=standard error

**Table 2. The test of measurement equivalence**

Model		$\chi^2$	df	TLI	CFI	RMSEA
<b>Parenting stress</b>						
Model 1	Unconstrained model	233.59	76	.88	.92	.06
Model 2	Measurement weights constrain	<b>268.90</b>	<b>88</b>	.89	.90	.06
Model 3	Measurement residual constrain	217.60	69	.87	.92	.07
Model 4	Measurement weights and residual constrain	249.18	81	.88	.91	.06
<b>Co-parenting</b>						
Model 1	Unconstrained model	229.32	76	.88	.92	.05
Model 2	Measurement weights constrain	<b>263.54</b>	<b>88</b>	.89	.91	.05
Model 3	Measurement residual constrain	<b>190.24</b>	69	.91	.93	.04
Model 4	Measurement weights and residual constrain	242.21	81	.90	.92	.05
<b>Marital conflict</b>						
Model 1	Unconstrained model	216.30	103	.93	.94	.04
Model 2	Measurement weights constrain	323.95	117	.89	.89	.05
Model 3	Measurement residual constrain	188.95	95	.94	.95	.03
Model 4	Measurement weights and residual constrain	291.82	109	.90	.91	.05

**Table 3. Dyadic effects of hypothetical model**

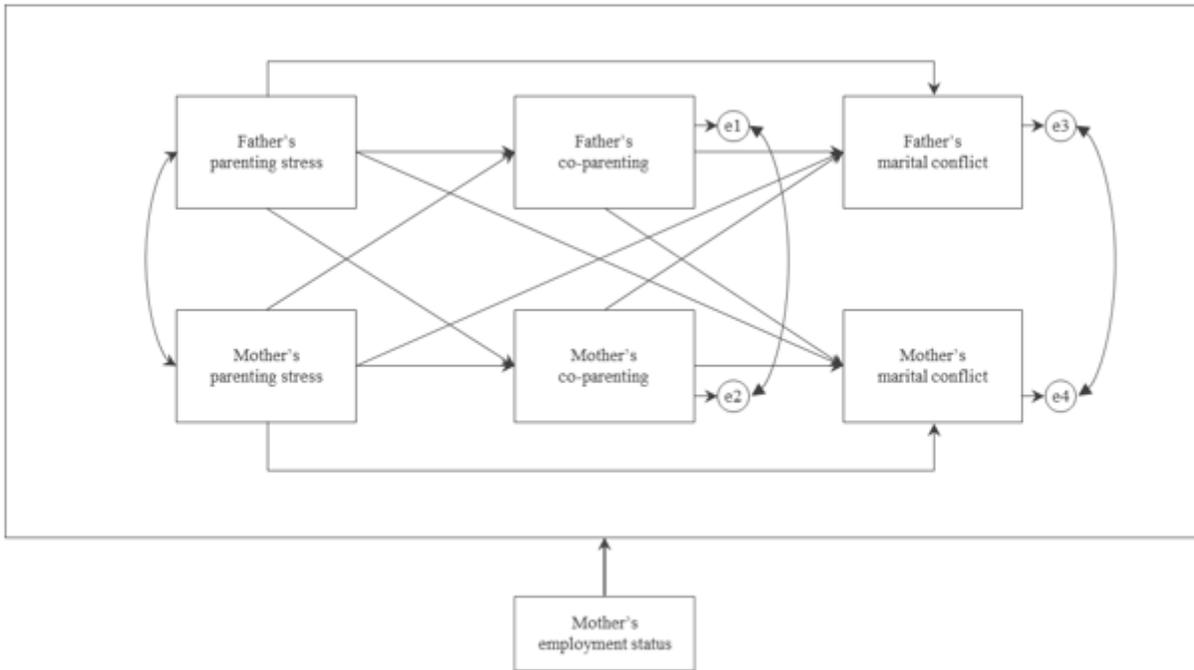
Independent variables	Dependent variables	$\beta$	B	S.E	C.R	<i>p</i>	<i>Direct effect</i>		<i>Indirect effect</i>		<i>Total effect</i>	
							$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
Parenting stress (f)	à Co-parenting (f)	-.46	-.74	.11	-6.69	<.001	-.46	<.001	-	-	-.46	<.001
Parenting stress (f)	à Co-parenting (m)	-.22	-.37	.12	-3.12	<.001	-.22	<.001	-	-	-.22	<.001
Parenting stress (m)	à Co-parenting (f)	-.20	-.27	.09	-2.88	<.001	-.20	<.001	-	-	-.20	<.001
Parenting stress (m)	à Co-parenting (m)	-.36	-.50	.10	-4.94	<.001	-.36	<.001	-	-	-.36	<.001
Parenting stress (f)	à Marital conflict (f)	.32	-.32	.08	4.40	<.001	.32	<.001	.17	.004	.49	.023
Parenting stress (f)	à Marital conflict (m)	.12	.14	.10	0.87	.699	.12	.699	.04	.005	.16	.269
Parenting stress (m)	à Marital conflict (f)	.15	.15	.06	0.57	.449	.15	.449	.07	.005	.22	.007
Parenting stress (m)	à Marital conflict (m)	.13	.15	.08	1.82	.068	.13	.068	.18	.003	.31	.013
Co-parenting (f)	à Marital conflict (f)	-.29	-.20	.05	-3.64	<.001	-.29	<.001	-	-	-.29	<.001
Co-parenting (f)	à Marital conflict (m)	-.22	-.19	.07	-2.75	<.001	-.22	<.001	-	-	-.22	<.001
Co-parenting (m)	à Marital conflict (f)	-.19	-.12	.05	-2.40	<.001	-.19	<.001	-	-	-.19	<.001
Co-parenting (m)	à Marital conflict (m)	-.39	-.31	.06	-5.70	<.001	-.39	<.001	-	-	-.39	<.001

f=father, m=mother, SE=Standard error, C.R=Critical ratio

**Table 4. Comparison of path-coefficients according to employment status of maternal**

Independent variables	Dependent variables	<i>Employed</i>		<i>Unemployed</i>		<i>Critical ratios of difference</i>
		$\beta$	<i>p</i>	$\beta$	<i>p</i>	
Parenting stress (f)	à Co-parenting (f)	-.46	<.001	-.46	<.001	-0.035
Parenting stress (f)	à Co-parenting (m)	-.18	.102	-.30	.001	0.146.
Parenting stress (m)	à Co-parenting (f)	-.22	.033	-.18	.044	-0.484
Parenting stress (m)	à Co-parenting (m)	-.37	<.001	-.35	<.001	0.342
Parenting stress (f)	à Marital conflict (f)	.41	<.001	.25	.012	-2.408
Parenting stress (f)	à Marital conflict (m)	.17	.129	.19	.342	0.598
Parenting stress (m)	à Marital conflict (f)	.18	.429	.10	.976	-1.775
Parenting stress (m)	à Marital conflict (m)	.14	.738	.21	.019	1.325
Co-parenting (f)	à Marital conflict (f)	-.41	<.001	-.18	.103	2.753
Co-parenting (f)	à Marital conflict (m)	-.30	.015	-.15	<.001	-1.625
Co-parenting (m)	à Marital conflict (f)	-.14	.657	-.29	.007	2.952
Co-parenting (m)	à Marital conflict (m)	-.31	.007	-.45	.137	1.274

## Figures



**Figure 1**

The dyadic model of parenting stress, co-parenting and marital conflict: the moderating effect of mother's employment status