

The Impact of Marital Discord of Parents on Taiwanese Adolescents' Academic Achievement: The Mediating and Moderating Effect of Maternal Parenting Practice

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INTRODUCTION

The Importance of Adolescents' Academic Achievement

Social scientists, policymakers, educators, and parents often emphasize educational success for adolescents because unsuccessful academic achievement often results in negative outcomes such as depressed mood (Feshbach and Feshbach, 1987), low self-esteem (Hightower et al., 1986), drug use, aggressive behaviors, criminal perpetrations (Dubois, Errel, and Felner, 1994), and difficulties finding gainful employment (Steinberg, 1996). Furthermore, the issue of academic achievement has lasting importance because it represents, in many ways, an individual's status and can influence an individual's subsequent developmental tasks, such as family relationships, social status, physical health, and mental well-being (Pallas, 2000).

In Chinese society, in addition to the adverse consequences of academic failure, academic success is highly valued (see Xu, Zhang, and Xia, 2007). It is important to be well educated. For example, Chen, Chang, and He (2003) reference an old proverb that says, "Gold is found in books" (p.710). Evidence of how Chinese culture values educational status dates back to the Tang Dynasty (around 618-907AD). During this period, an intellectual could hold government office and be considered an aristocrat upon successful completion of the imperial examination. Today, some Chinese societies still select government officials based on their scores on a nationwide exam. Financial compensation is not the only reward of academic success in Chinese culture. Succeeding academically also brings glory to the individual's entire family (Lam, 1997). As a result, most Chinese still expect younger generations to be well educated attaining at least a college degree. In fact, parents and teachers in Taiwan pay very close attention to their young adolescent's academic achievement because the results of academic achievement in junior high school serve as an important indicator of future success in academia and professional careers (Chen, Rubin, and Li, 1997). Consequently, most adolescents experience prolonged study hours including attendance in cram schools, designed to provide extra learning opportunities (Yi and Wu, 2004).

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Starting as early as junior high, students transition to an entirely new performance oriented educational environment in preparation for the entrance exam that determines their high school placement (Wu and Tseng, 1985; Yi, Wu, Chang, and Chang, 2009). Overall, the most important task for Taiwanese adolescents is to prepare for the high school entrance exam with the goal of scoring well enough to gain admittance to an esteemed school that will provide the best educational opportunities. Accordingly, educators and parents expect junior high school students to study diligently in an effort to get perfect grades in their coursework as preparation for the entrance exam.

Parental Marital Discord as One Influential Family Context on Adolescents' Developmental Outcomes

Previous studies indicate that family experiences, such as family member interactions, are highly linked to adolescents' adjustment in school (Jencks et al., 1972) and have a central status in the field of educational sociology (Dubois et al., 1994). Recently researchers have pointed out that family context is an important variable because the individuals' development is embedded in the path of other family members (Bogenschneider, Small, and Tsay, 1997; Yougblade et al., 2007). In addition, researchers have indicated that family conflict is an important factor that can inhibit individual development and impair family function (Bray, 1995; Emery, 1988; Hetherington and Cingempeel, 1922). Although most of these previous studies focus on social status, family income, parent's education level and occupation, they rely almost exclusively on cross-sectional designs to describe the family structure at a static point in time. Scholars agree that this type of design is only suitable to explore short-term issues in adolescent development (Bronfenbrenner, 1986; Felner and Felner, 1989; McLoyd, 1990) because it cannot account for adolescent life trajectories and adaptations. A longitudinal design is necessary to adequately project the mediating and moderating effects of variables associate with family context on adolescent developmental outcomes.

In general, scholars believe that conflicts in the home relate to poorer adolescent developmental outcomes. For example, Formoso, Gonzales, and Aiken (2000) found that family conflict was associated with anti-social behaviors and aggression in adolescents. Garber (2004) concluded that "depression disorders in adolescence have been associated with increased family conflict" (p.611); and Sheeber, Hops, and Davis (2001) indicated, "Adverse family relationships appear to place adolescents at risk for depressive disorders and symptomatology" (p.19). Frequently, in literature using western populations, researchers assert that the development of children is at serious risk in a family with high marital discord (Fauber and Long, 1991) resulting in a series of adjustment problems (Katz and Gottman, 1993; Emery, 1988; Grych and Fichman, 1990).

Studies focusing on adolescent academic achievement are limited. Dubois and his colleagues (1994) posit that a conflicted family climate would have a direct negative impact on an adolescent's academic achievement. Bradley and Corwyn (2000) found that family conflict was negatively associated with Chinese Americans' school grades. Unger, McLeod, Brown, and Tressell (2000) showed that parental marital conflict, as a primary source of family conflict, was negatively associated with adolescent academic achievement. Wallerstein and Kelly (1980) also pointed out that marital discord with parents could affect academic achievement by distracting adolescents' concentration from their studies. Accordingly, the

present study focuses on marital discord because marital conflict is a common problem in the family, especially in Taiwan, where divorce is culturally discouraged. Many adolescents find marital conflict to be one of the hardest family issues with which to cope (Harold and Conger, 1997; Krishnakumar and Buehler, 2000; Morrison and Coiro, 1999). However, few studies have evaluated possible mechanisms between parental conflict and adolescent academic achievement. There is a need to explore the degree and manner in which parental marital discord negatively influences adolescent academic achievement.

Parenting Practices and Adolescent Academic Achievement

In addition to school influences such as interpersonal school relationships, curricula, and teacher efficiencies, adolescent academic achievement is highly influenced by parents (Jencks et al., 1972). Based on a review of existing literature, Dornbush et al., (1987) concluded that parenting practices have strong impact on offspring's academic achievement. Bronstein and his colleagues (1996) further posit that adequate parenting practices could foster child cognitive development, and therefore, facilitate better academic achievement. Parenting is a broad concept with many terms that describe differential parenting practices. This study will focus on two latent constructs that are common parenting practices in the Taiwanese literature on academic achievement. One is reasonable control, which includes monitoring, consistency, and inductive parenting behaviors. The other is corporal punishment.

Reasonable control is frequently seen as positive in terms of promoting adolescent academic achievement. Steinberg and his associates (1988) contended that consistent parenting behaviors assist academic achievement because the stable norms and expectations provided by parents help adolescent to know behavioral expectations. Simons and his colleagues (2000) furthered this line of thinking by proposing that parents could not only prevent adolescent deviant behavior but also facilitate adolescent academic achievement by monitoring their daily school work. Parental inductive reasoning would also facilitate adolescent learning by helping them to think aloud (see Epstein and Mcpartland, 1977).

On the other hand, corporal punishment is commonly viewed as a negative parenting behavior in the U.S. and in Taiwan (see Simons et al., 2000). However, corporal punishment may be seen as inevitable and an efficient approach in the educational process for some parents and teachers in Chinese societies (see Chao, 1994). Summarizing evidences from previous studies, reasonable control seems to promote adolescent academic achievement whereas corporal punishment would have negative influence on it.

Maternal Parenting Practice as a Mediator or Moderator

Two indirect models present the relationship between parental marital discord and parenting practices. The spillover model states that, following conflicts with a spouse, parents feel exhausted, less energetic, and unable to adequately deal with their child (Erel and Burman, 1995; Fauber, Forehand, Thomas, and Wierson, 1990). The result of this exhaustion is undesirable parenting practices, such as corporal punishment (Almeida, Wethington, and Chandler, 1999). The compensation model suggests that parents feel guilty and apologetic for their unhappy marital climate, so they compensate by employing positive parenting

behaviors in an effort to buffer the potential negative influences of the marital conflict (Erel and Burman, 1995).

Many researchers suspect that incompetent parenting practices that may result from marital discord, more than the marital discord itself, negatively impacts adolescents' academic achievement. Fighting parents either lack positive parenting practices or engage in increased undesirable parenting practices. An abundance of research indicates that if parents use more positive parenting practices, such as showing consistent disciplinary actions (Steinberg, Brown, Cazmaerk, Cider, and Lazarro, 1988; Dornbusch, 1989), monitoring their children's behavior (Simons, Wu, Lin, Gordon, and Conger, 2000), or engaging in inductive reasoning (Dornbusch, 1989; Simons et al., 2000), their children will be successful across aspects of development. In contrast, the absence of such positive parenting practices (Baumrind, 1991; Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg, 1990; Steinberg et al., 1989), or the misuse of corporal punishment, will increase the possibility of child deviation (Amato and Fowler, 2002; Simons et al., 2000). In addition, researchers suggest that there might be differential cultural implications in certain parenting behaviors (see Peterson, Steinmetz, and Wilson, 2004; Yi, Chang, and Chang, 2004), for example, corporal punishment might not be seen as inappropriate in Chinese societies as in western countries. Because most research was done with outcomes such as mental health or deviant behaviors, little is known of the relationship between parenting practices and adolescent academic achievement. Therefore, prior to evaluating influences of maternal marital discord, an assessment of whether the direction of parenting practices on Taiwanese adolescent academic achievement is consistent with the direction of most western studies is in order.

Most empirical research supports the spillover effect model. However, the link between high marital discord and parents' negative parenting may not be the only causal path (see Hair, Moore, Hadley, Kaye, Day, and Orthner, 2009). For example, Almeida, Wethington and Chandler (1999) found that approximately 50% of mothers experiencing marital discord increased their use of corporal punishment. Some parents may try to be more competent in parenting by showing positive parenting practices to compensate for their exhaustion caused by the marital conflict. Hence, the mechanism of parental practice that operates between parents' marital discord and adolescents' academic achievement could be the spillover effects or a combination of the spillover effects and the compensation model. Accordingly, this study will look at both the spillover effect model and a hybrid of spillover effect and compensation models as an interaction model. This interaction model implies that marital discord might buffer the positive, or worsen the negative parenting effect on adolescent academic achievement. To test these hypothetical models, we present a structural equation model for both reasonable control and corporal punishment parenting practice models. We compare high marital discord and low marital discord families to see the relationships among variables across areas.

MEASUREMENTS AND METHOD

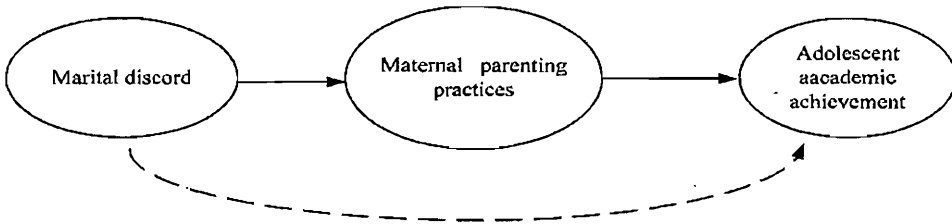
This study focused on maternal parenting practice because mothers are most often the primary caregiver and the supervisor for children's daily life, including schoolwork, while fathers traditionally play the role of main breadwinner in Chinese cultures. A longitudinal data collection approach, using panel design, can best capture and evaluate the long-term

effects of parental marital discord that typically exhibit in continuous unhappiness on adolescent outcomes. Therefore, this panel design provided repeated measurement of marital discord, by following mothers of adolescents for two years to evaluate any long-term influence on adolescent perceptions of maternal parenting and academic achievement at concurrent as well as subsequent waves in order to avoid a simultaneous reciprocal effect. Based on the existing literature, there are two contrasting and compelling hypotheses about the influences of marital discord. One deals with mediating effects, which hypothesizes that the influences of marital discord on adolescent academic achievement is through inadequate parenting practices. The other deals with moderating effects, which states that the negative impact of marital discord on adolescent academic achievement is buffered by adequate maternal parenting or exaggerated by inadequate parenting. Figure 1 portrays the model tested in this study.

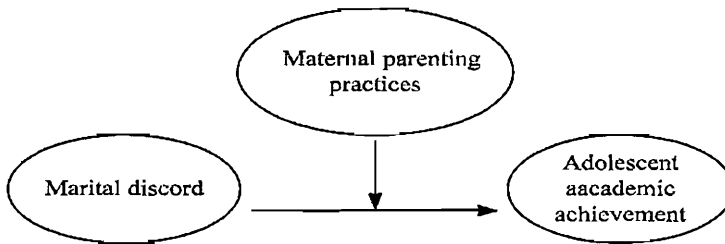
Figure 1.

Hypothetical Causal Relationship in Present Study

Mediating Model



Moderating Model



Data

The data used in this study were from a Taiwanese longitudinal study entitled “The Etiology of Adolescent’s Substance Abuse: A Social Learning Model.” funded by the NHRI at the Institute of Sociology Academia Sinca. The sample, derived from a two-stage cluster sampling approach (a common probability sampling method for large-scale surveys), generated a representative sample of seventh graders living in Taipei, Taiwan. The first stage of data collection involved selecting two to four schools from each of the 12 Taipei school districts. The number of schools selected from each district was proportional to the number of schools in each district. In the second stage, one or two classes were selected within each school, with the number of classes selected being dependent on the size of the school. All of the students in the selected classes were included in the sample. This strategy resulted in an initial sample of 1,560 students, representing 44 classes from 33 schools in Taipei City.

According to the research purpose of this study, main variables from of maternal marital relationship in 1997 and 1998 (the second wave and third waves) were collected from mothers' questionnaires. The data of perceived parenting practices came from target students' database in 1998 (the third wave). The academic achievement data came from the youth questionnaires from both the third wave and the fifth wave (2001, representing the year the students entered high school). Additionally, family income and mother educational level, the covariates, came from the first wave of maternal data. In sum, this study used first wave data to control for family income and mother education level, second and third wave data to construct the marital discord climate variable, and the third and fifth wave data to acquire target students' academic achievement (See Table 1).

Table 1.

Study Variables from Different Waves' Data				
Reporter	7 th grade (1996)	8 th grade (1997)	9 th grade (1998)	11 th grade (2000)
Adolescents	—	—	(Perceived) maternal parenting practices Academic performance at school	High school entrance exam
Mothers	Education level Family income	Marital discord	Marital discord	—

Sample

After combining study variables from the five waves of data and excluding data reported from non-traditional families (e.g., single parent households, stepfamilies, grandparent households), there were 931 valid cases of adolescent and mother dyads (60% retention rate). Adolescents were age 11 to 14 with a mean of 12.56 ($SD = .58$); the majority of adolescents (95.7%) were age 11 to 12 at wave one. There were 466 male adolescents and 465 female teenagers in the final paired sample. Family income ranged from less than \$30,000 NT dollars to above 100,000 NT dollars; the mode of family income was \$30,000 to \$50,000 NT dollars a month (mid to lower class), and it represented 27% of this sample. The majority (34.9%) of the mothers had a senior high or vocational high school degree with a range of education level from elementary to graduate school degree.

Measures

Adolescent Academic Achievement

The concept of adolescent academic achievement in Taiwan refers to performance on both coursework and the high school entrance exam. Students rarely share their entrance exams scores. Therefore, adolescent academic achievement was collected by asking, "Which high school do you attend?" in questionnaires from the fifth wave of data collection. By asking students this question, the researchers were able to look up the rank of high schools, based on the minimum entrance score required for each school, to classify the schools into eight levels. This variable was regarded as continuous, with the lowest value 1 (poor academic achievement) to the highest value 8 (superior academic achievement).

Maternal Parenting Practice

Reasonable control. Reasonable control has three indicators. Past research has established that reasonable control includes three important subscales, a) monitoring child's behavior, b) using inductive reasoning to explain rules, and c) being consistent in the use of discipline (Simons et al., 2000). The adolescent questionnaire focused on all three of these subscales. Example questions included monitoring (e.g., "how often does your mother know you are with when you are away from home?"), inductive reasoning (e.g., "how often does your mother discipline you by reasoning, explaining, or talking to you?"), and consistency of discipline (e.g., "how often does your mother punish you for something at one time and then at other times not punish you for the same thing?"). Response options ranged from 1(never) to 5(always). These variables were regarded as continuous. The Cronbach's alphas were .82, .71 and .91 for scores from each reasonable control subscales respectively. The sum score from each subscale became the reasonable control indicator.

Corporal punishment. Adolescents completed four items adapted from the Harsh Discipline Scale (Simons, Wu, Johnson, and Conger, 1995) to report the extent to which their mother used corporal punishment when administering discipline (e.g., "how often does your mother spank or slap you when you do something wrong?"). Response options on this continuous variable ranged from 1(never) to 5(always). The sum of the scores on the four items became the corporal punishment indicator.

Marital Discord

Marital discord was measured annually for two years by mothers' report on various behaviors (a nine-item scale) that spouses sometimes display during interaction with each other in the past 30 days (e.g., "criticize you"; "ignore you"; "try to make you feel guilty" etc.). The response format ranged from 1(never) to 7(always). The items were adapted from a composite measure of spouse support that included both positive and negative items of spouses' interactions (Simons, Lornenz, Wu, and Conger, 1993). We regard these variables as continuous variables, with the lowest value 1 to the highest value 7. Two years of marital discord scores were combined to by using the formula

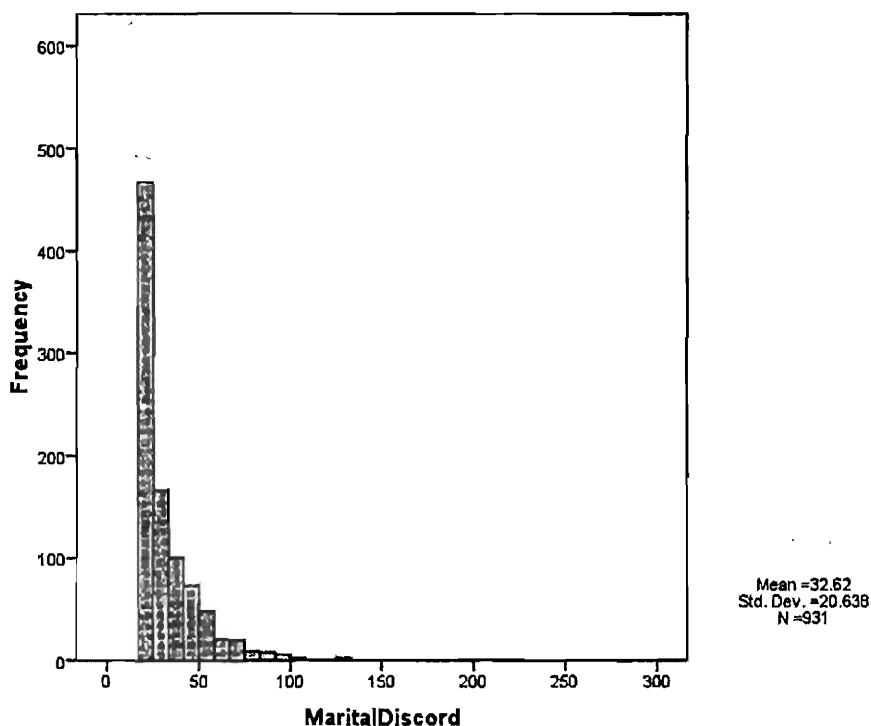
$$\left(\frac{2nd's\ score - 1st's\ score}{1st's\ score} + 1 \right) \times (2nd's + 1st's\ score)$$
 to capture the

continuous increase or decrease of marital conflict. The distribution of marital discord was originally highly positive skewed (see Figure 2) with a mode of 18, which indicated that the majority of families did not experience severe marital discord. In order to compare the impact of high (severe) versus low (minor) marital discord, we used one standard deviation above the mean as the cut off point for high marital discord status while the scores below one standard deviation were categorized as low marital discord status.

Covariates: Family Income and Mother's Education Level

Family income and parent education level are two covariates that are frequently controlled for in studies of adolescent academic and intellectual outcomes (see Yi et al., 2009). Family income had six categories, less than NT \$30,000, between NT\$30,000-50,000, between NT

Figure 2.

Distribution of Maternal Marital Discord.

\$50,000-60,000, between NT \$ 60,000-80,000, between NT \$80,000-100,000, and above NT \$100,000. Current exchange rate is US \$1: NT \$33 dollars. Mother's education level was also classified into six categories: primary school or under, junior high school, senior high school, junior college, college and university, and graduate school. Gender differences were not found in adolescent academic achievement; the only minor difference was found in perceived maternal monitoring behaviors (female adolescents reported slightly higher level of monitoring than males did). Therefore, data were not divided by gender to maintain statistical power for further analysis. Based on the principle of parsimony, adolescent age was not controlled because age differences were not found in perceived parenting practices or academic achievement in this study.

FINDINGS

In addition to descriptive statistics, liner structural equation modeling was the primary method of inferential statistical analysis used to test the research questions in this study. The results from fitting the data into the proposed model are shown separately for both reasonable control and corporal punishment parenting practices. The standardized coefficients in the figures represent the maximum likelihood estimates obtained using *Mplus* 5.1.

Preliminary Descriptive Analyses

Table 2 provides the descriptive statistics of the studied variables. It showed that mothers of adolescents in general were more likely to utilize reasonable control rather than corporal punishment in parenting. Table 3 shows the correlation coefficients for each variable. From this correlation matrix, in addition to demonstrated convergent validity for maternal parenting, consistent negative associations among marital discord and adolescent academic outcomes can be observed. In addition, marital discord was negatively correlated with maternal reasonable control but positively associated with maternal corporal punishment.

Table 2.

Descriptive Statistics of Studied Variables

Studied Variables	Range (minimum-maximum)	Mean	<i>SD</i>
Maternal marital discord	236 (15-254)	32.62	20.64
Reasonable control:			
Monitor	16 (0-16)	11.90	3.47
Reasonable control:			
Consistent	16 (0-16)	10.05	3.28
Reasonable control:			
Inductive reasoning	32 (0-32)	18.33	7.88
Corporal Punishment:			
Spank	4 (1-5)	1.78	1.07
Corporal Punishment:			
Beat	4 (1-5)	1.32	.74
Corporal Punishment:			
Slash	4 (1-5)	1.26	.68
Corporal Punishment:			
Kick out from the house	4 (1-5)	1.15	.49
Adolescent academic performance at school	4 (1-5)	2.96	1.13
Adolescent high school entrance exam	8 (0-8)	4.40	2.53

Test for Mediating Effect

Figure 3 shows the overall significant negative direct effect of maternal marital discord on adolescent academic achievement ($\bar{a} = -.090, p < .05$) after controlling for mother's educational level and family income. Further, maternal parenting practices were added to evaluate the mediating effects. Figures 4 and 5 show the partial mediating effects of maternal parenting practices and the impact of maternal marital discord on adolescent academic achievement.

Further testing the full mediation model by deleting the direct path from maternal marital discord to adolescent academic achievement presented in figures 6 and 7 show a reduction of 4.338 and 5.114 in the chi-square value with 1 degree of freedom. The critical chi-square

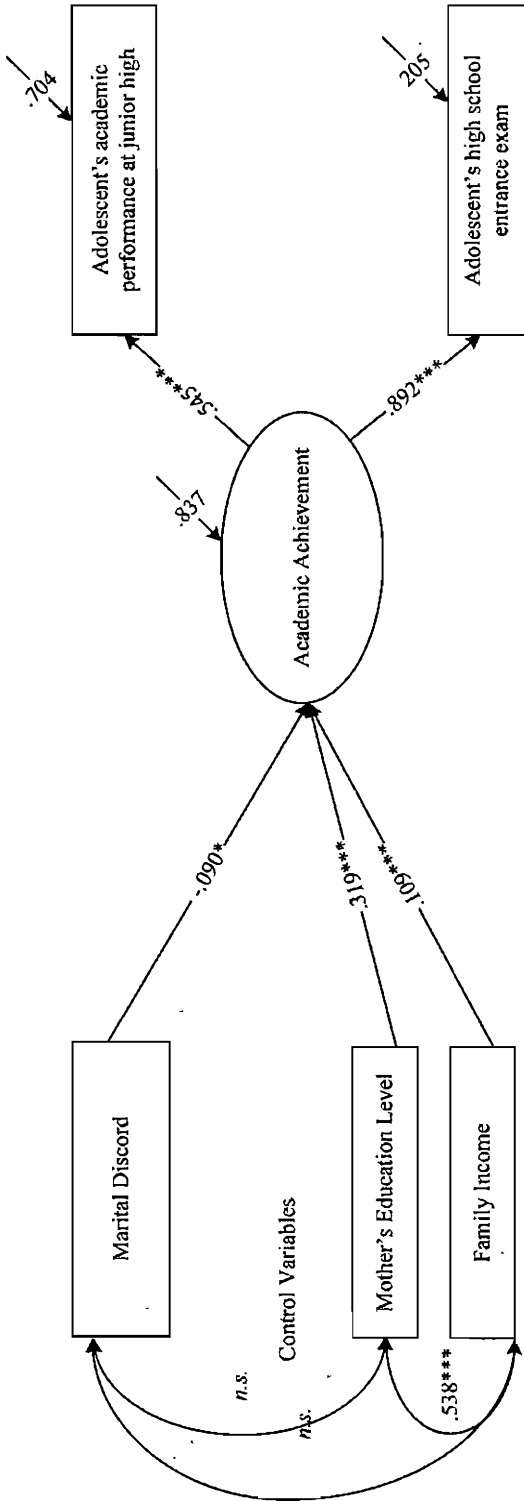
Table 3.

Correlation Matrices for Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Mother education level											
2. Family income	.536**										
3. Marital Discord	-.057	-.060									
4. Reasonable control _ Monitor	.165**	.111**	-.068*								
5. Reasonable control _ Consistent	.192**	.157**	-.043	.362**							
6. Reasonable control _ Inductive reasoning	.159**	.165**	-.082*	.588**	.285**						
7. Corporal Punishment: Spank	-.051	-.049	.067*	-.155**	.200**	-.298**					
8. Corporal Punishment: Beat	-.034	-.007	.086**	-.141**	.152**	-.190**	.554**				
9. Corporal Punishment: Slash	-.092**	-.038	.053	-.107**	.117**	-.147**	.427**	.600**			
10. Corporal Punishment: Kick out from the house	-.009	-.041	.035	-.086**	.117**	-.129**	.309**	.400**	.357**		
11. Adolescent's 3rd year academic performance at junior high	.196**	.147**	-.110**	.239**	.120**	.183**	-.176**	-.183**	-.098**	-.086**	
12. Adolescent's senior high school entrance exam	.340**	.257**	-.089*	.262**	.131**	.206**	-.116**	-.104**	-.115**	-.060	.480**

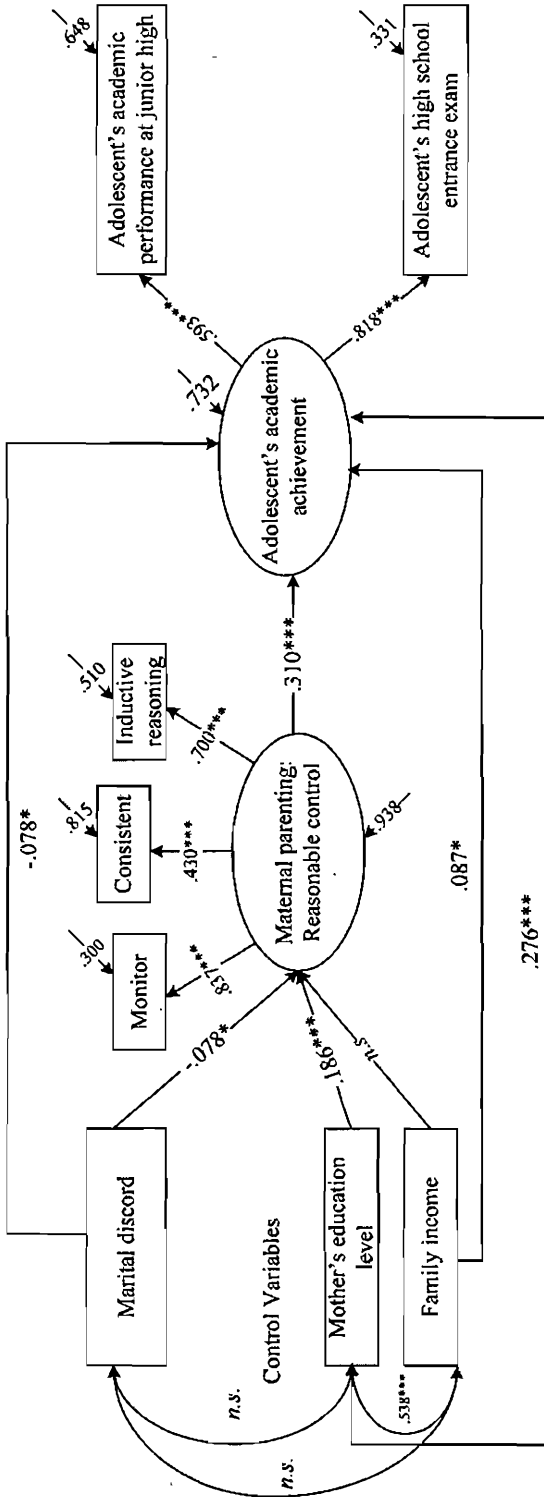
Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 3. **No Mediation Model: The Impact of Marital Discord on Adolescent Academic Achievement.**



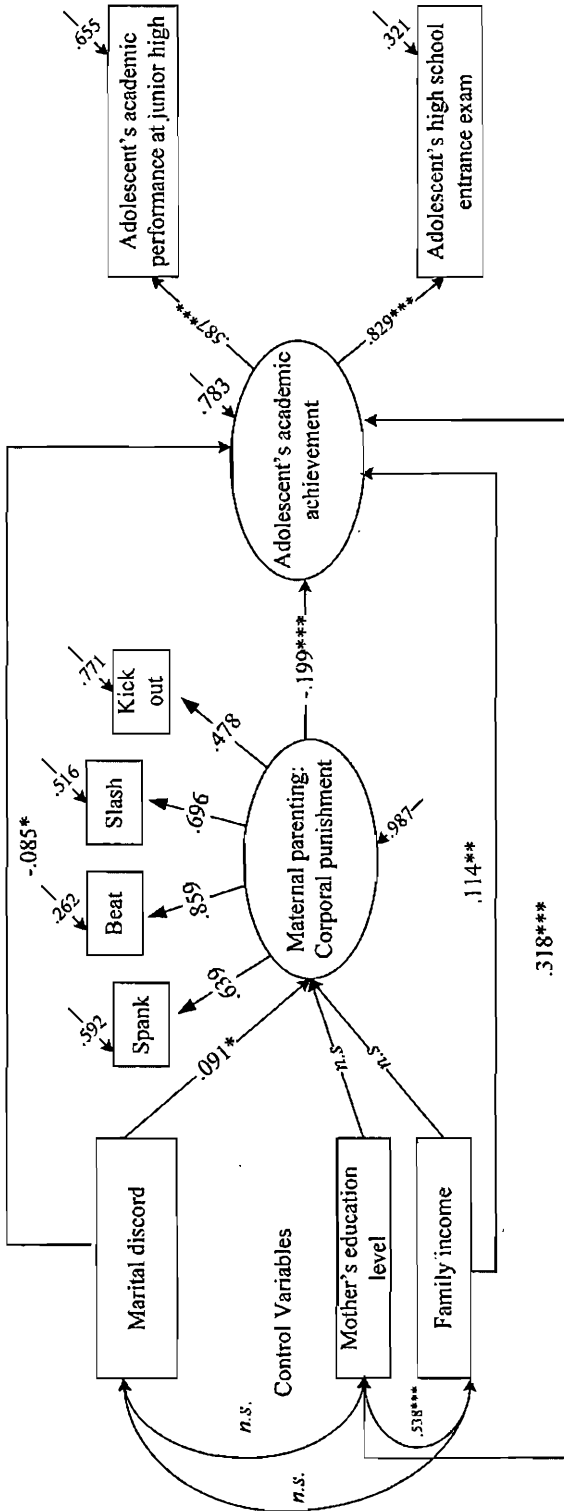
$N = 931, \chi^2(2) = 4.012, CFI = .994, TLI = .979, RMSEA = .033$
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Partial Mediation Model: Maternal Parenting (reasonable control) as a Mediator of the Impact of Marital Discord on Adolescent Academic Achievement.



N = 931, $\chi^2(13) = 33.939$, CFI = .978, TLI = .959, RMSEA = .042
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Partial Mediation Model: Maternal Parenting (corporal Punishment) as a Mediator of the Impact of Marital Discord on Adolescent Academic Achievement.



N = 931, $\chi^2_{(20)} = 36.534$, CFI = .988, TLI = .980, RMSEA = .030
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 5.

value with 1 degree of freedom for a .05 two-tailed test was 3.84. Accordingly, both changes in chi-square were significant at a .05 level which indicated that there were significant differences between partial mediation and full mediation models therefore we should not exclude the path from maternal marital discord to adolescent academic achievement.

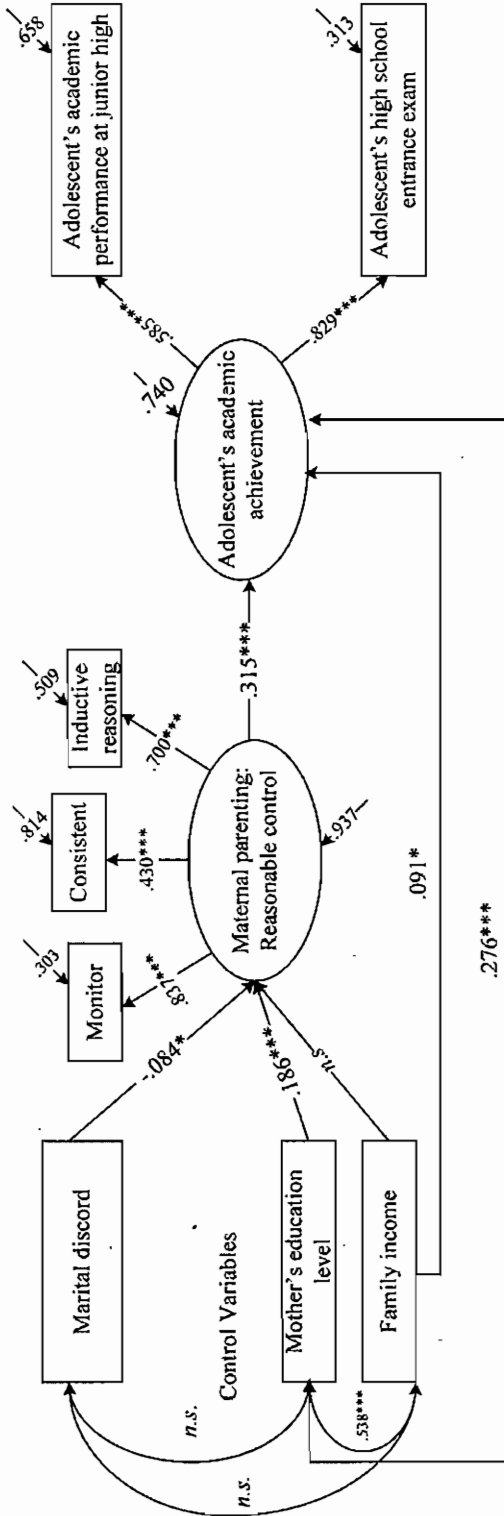
Summarizing the findings to this point, both models showed that there were not only significant direct effects, but also indirect effects of maternal marital discord on adolescent academic achievement ($\bar{a} = -.078, p < .05$ and $\bar{a} = -.085, p < .05$ respectively). The path between marital discord and reasonable control was $-.078 (p < .05)$, which indicates that the amount of maternal parenting, in terms of reasonable control for high conflict families, would be .078 units lower than low conflict families when other variables were held constant. The path between marital discord and harsh discipline was $.090 (p < .05)$, which indicates that, after controlling effects of other variables, mothers of high conflict status tended to apply more harsh discipline than those in low conflict. Additionally, the path between reasonable control and academic achievement was positive ($\beta = .310, p < .001$) whereas the path between harsh discipline and academic achievement was negative ($\beta = -.199, p < .001$). These findings were consistent with previous findings with western populations, even including the path between corporal punishment and adolescent academic achievement.

Test for Moderating Effect

In addition to examining mediating effects, this study also tested the interaction effects of maternal marital discord and parenting practices. To accomplish this task, we divided the sample into low and high marital discord groups. Figure 5 shows the results of maternal reasonable control practices for both low and high marital discord groups. Maternal parenting practices, in terms of reasonable control for the high marital discord group, had a stronger positive effect on adolescent academic achievement ($\beta = .477, p < .001$) than for the low marital discord group ($\beta = .290, p < .001$). Figure 6 indicates that the standardized negative coefficient of harsh discipline, for the high marital discord group, was almost three times ($\beta = -.461, p < .001$) the effect for low marital discord group ($\beta = -.167, p < .001$).

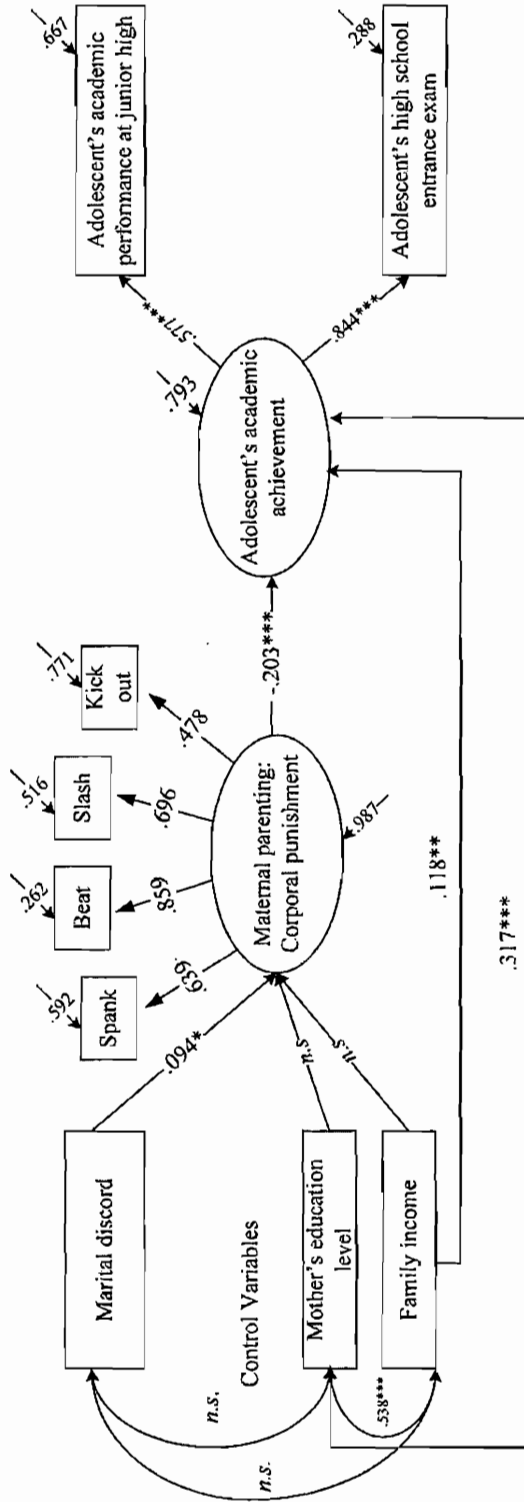
To evaluate the level of statistically significant difference between these two paths, we applied two group model comparisons. The traditional model comparison evaluated whether there were any significant differences in factor loadings, error terms, correlations of exogenous and endogenous latent variables, and causal paths. Bollen (1989) stated that this procedure is not necessary and researchers can just evaluate the interested path(s) directly to avoid producing inflated alpha leading to Type I error. Accordingly, we first estimated an unconstrained model, where all paths were set free for both high and low marital discord groups. Next, the path between maternal parenting practice and adolescent academic achievement was set to equal for both high and low marital discord groups except the path between parenting behaviors and academic achievement. By comparing the delta χ^2 value between the unconstrained and constrained model, the χ^2 statistic indicated whether the path between parenting behaviors and academic achievement were different across high and low marital discord group. As a result, the constrained path between reasonable control and academic achievement for both low and high marital discord groups resulted in a non-significant increase of .372 for the χ^2 value. The constrained path, between harsh discipline and academic achievement for both groups, led to a non-significant 1.336 increases in the χ^2

Figure 6. Full Mediation Model: Maternal Parenting (reasonable control) as a Mediator of the Impact of Marital Discord on Adolescent Academic Achievement.



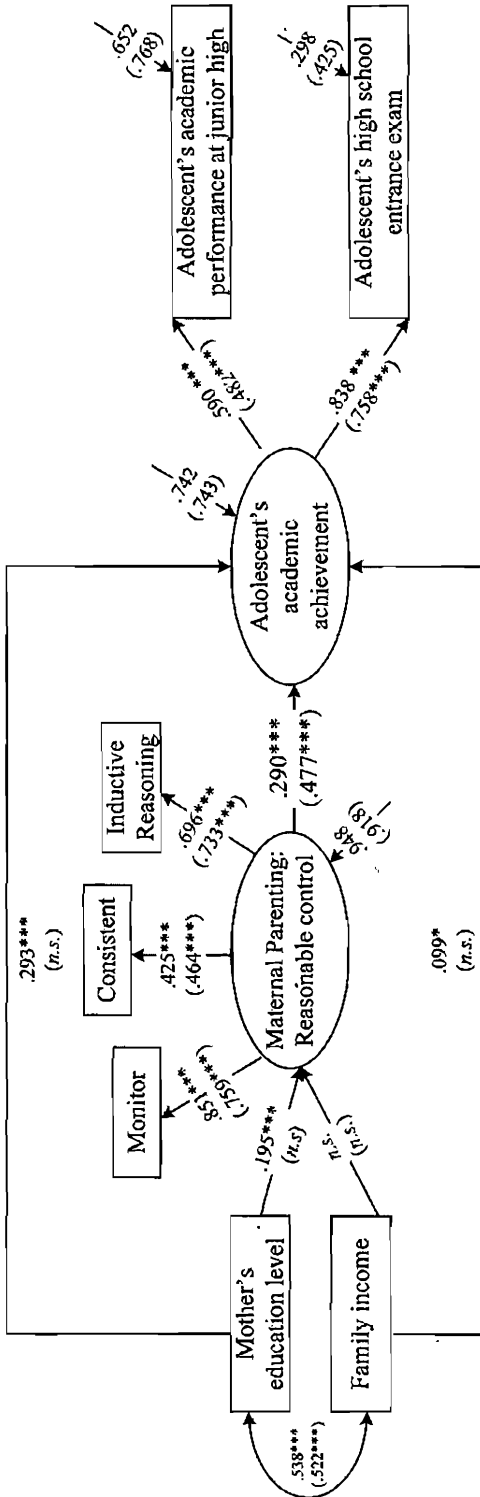
$N = 931, \chi^2_{(14)} = 38.277, CFI = .975, TLI = .955, RMSEA = .043$
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 7. Full mediation model: Maternal Parenting (corporal punishment) as a Mediator of the Impact of Marital Discord on Adolescent Academic Achievement.



N = 931, $\chi^2(21) = 41.648$, CFI = .985, TLI = .976, RMSEA = .032
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Maternal Parenting (reasonable control) as a Moderator of the Impact of Marital Discord on Adolescent Academic Achievement.

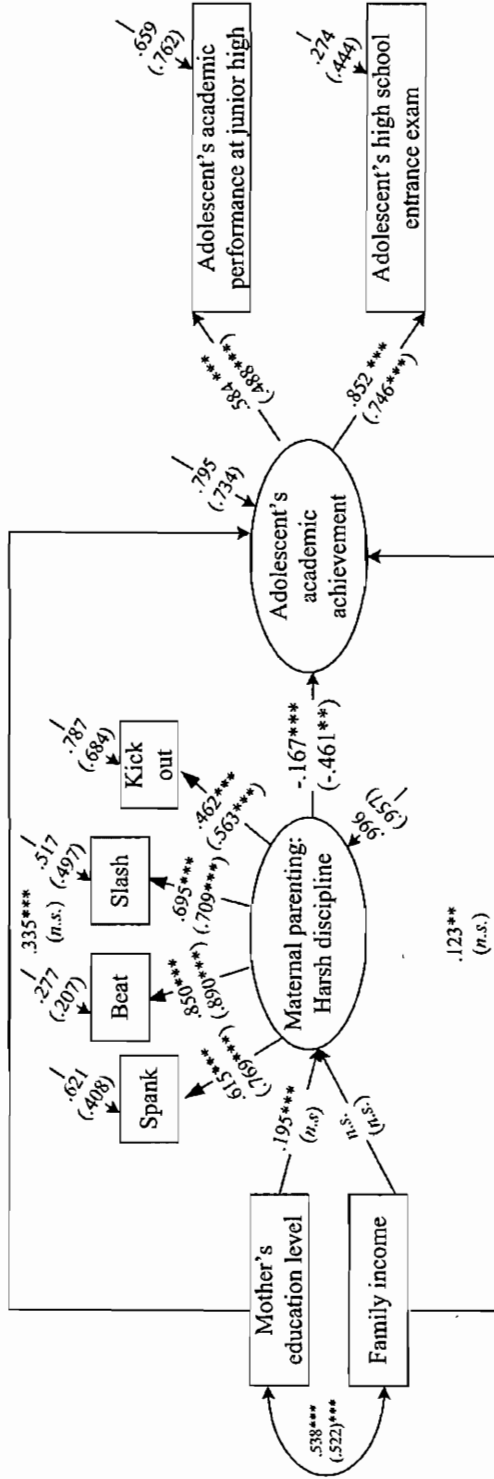


N = 931 (n = 821 for low conflict family; n = 110 for high conflict family), $\chi^2_{(26)} = 53.454$ (R^2 was 33.307 for low conflict family whereas 20.147 for high conflict family), CFI = .971, TLI = .956, RMSEA = .048

Note: Coefficients in parentheses are for high marital discord group. * p < .05, ** p < .01, *** p < .001

Figure 8.

Maternal Parenting (corporal punishment) as a Moderator of the Impact of Marital Discord on Adolescent Academic Achievement.



N = 931 (n = 821 for low conflict family; n = 110 for high conflict family), $\chi^2_{(40)} = 70.229$ (χ^2 was 34.936 for low conflict family whereas 35.293 for high conflict family), CFI = .977, TLI = .969, RMSEA = .040
 Note: Coefficients in parentheses are for high marital discord group. * $p < .05$, ** $p < .01$, *** $p < .001$

value. In sum, no significant differences were found for the interaction effect of maternal marital discord and parenting practices.

DISCUSSION AND CONCLUSION

Taiwan follows a traditional Chinese culture that values interdependence and emphasizes hierarchical authority (Lee, 1996). Taiwanese youth are expected to respect elders and authorities within the family, at school, and in the workplace. They are encouraged to be submissive and to recognize that their behaviors are largely influenced by their elders (Yeh and Yang, 2006). For most adolescents, the first priority given by their elders is to achieve in their school work and attend quality schools toward securing future success and bring honor to the family regardless of family social class or social economic status. Toward better academic achievement outcomes, most adults in Taiwan, including elders and young adults, have educational excellence instilled in them, sometimes even by corporal punishment. As mentioned by Chao (1994), harsh discipline plays an important role in the educational process among Chinese parents resulting from traditional values and beliefs. Therefore, it seemed logical that the results of parenting behaviors in western society would not manifest in a Taiwanese sample, especially in the domain of academic achievement.

However, in accord with most western studies, maternal parenting, using reasonable control, was positively related whereas corporal punishment was negatively related to adolescent academic achievement in this cotemporary Taiwanese sample. The direction of assertion between each parenting practice in this study and adolescent academic outcomes for this Taiwanese sample were similar to the relationship between parenting practices and adolescent wellbeing found in western societies. Globalization, international media disseminations, advanced telecommunications, and internet technology, might explain, in part, the reason this sample followed a pattern similar to previous western studies. After World War II, urban Taiwan changed rapidly by adopting many western ideals and values. The melding of economic growth and traditional development in Taiwanese culture has necessitated some drastic changes to many Chinese traditions in Taiwan (Yeh and Yang, 2006). Most of this drastic change is evidenced in the urban population. Because Taipei city represents a modern urban economic system connected to the global market the common belief is that adolescents living in the city will be more closely aligned to an individualistic western cultures. Even though education receives a higher priority in traditional Taiwanese culture, parenting practices were still related to academic success.

As for relationships between marital discord and maternal parenting practices, the results in this study supported the spillover effects model but failed to support the interaction of spillover effects and compensation model. Accordingly, mothers who experienced marital discord were less likely to engage in reasonable control parenting practices but more likely to use corporal punishment. Nevertheless, the relationship between marital discord and parenting practice were considered small. This might be due the floor effect of the scores of marital discord reported by mothers of adolescents recruited by a probability sampling approach in this study. The adverse effect of severe marital discord was not buffered by incremental reasonable control parenting practices. However, the path coefficients from parenting practices to adolescent academic achievement seemed more exaggerated in high conflict families than in low conflict families. Therefore, it appears as if there might be a

certain threshold for a cumulative amount of positive parenting practices in order to buffer or compensate for the marital discord family climate, which might not be frequently available in high marital discord families. Therefore, the interaction of the spillover effects and the compensation models (moderation models) was not supported in these data. This may be due to the discrepancy of sample size (it was harder to recruit families in conflict with a community/school-based sampling approach).

In summary, these results from a longitudinal, community-based adolescent sample in Taiwan, support western literature that marital discord, as a part of a climate of family conflict, not only had negative direct effects on adolescent outcomes in an eastern society but also demonstrated the mechanism between marital discord and adolescent academic achievement manifest through less desirable and adverse parenting practices with adolescent youth. Our findings also suggest that the influences of maternal marital discord could pervasively affect other aspects of adolescent development beyond health problems and deviant behaviors.

Limitations

A few limitations of this study are evident. First, it is very common that a particular case will miss certain items in a multiple-item scale from a panel study and the missing data might result in difficult estimation problem (Rovine and Delaney, 1990). Correlation analysis verified that the missing data in this study were not missing at random. Since the missing data in this study were not missing at random, generalizability this study is only limited to a population similar in demographic characteristics to this sample, the middle-lower class families in urban Taiwan.

In addition, only Taiwanese mothers were used in this study in order to have an adequate sample size across years because mothers of adolescents completed the majority of parent questionnaires. Traditionally, mothers have more involvements in the school work of their children and they are more likely than fathers to communicate with teachers regarding the child's academic achievement, behavior, and normative development. Only recently has the involvement of fathers at school been encouraged. It would be interesting to see future studies that evaluate the impact of paternal parenting practices on adolescent academic achievement within a conflict marital context.

With regard to the floor effect of the scores of marital discord reported by mothers, future studies might benefit from extended evaluation of the interaction effect of marital discord and parenting practices with a larger community-based sample including more highly conflictual marriages. It might be challenging to recruit more adolescent subjects from high conflict or poorly functioning families with a community-based approach, however, community-based research remains the preferred approach for some key reasons. Recurring clinical samples not only limits the generalizability of the findings, but also restricted the ability to tease out causal relations between stressful conflicts, duration, and outcomes. Most importantly, research findings from clinical settings are less convincing in Asian populations as a whole because most Asians not seeking clinical help consider themselves markedly different from those who receive clinical help in family matters (see Shon and Ya, 1982).

Another limitation of this study could be the sample size limiting further testing of the interaction effect of adolescent gender and maternal marital discord. Though there were no gender differences in maternal marital discord, academic achievement, and most maternal parenting indicators, little has been done to access this issue in previous studies. It would be a great contribution to the literature to evaluate whether negative impact of parental marital discord may be moderated by adolescent gender with a larger sample size.

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