Family Structure, Life Events, and Adolescent Distress: Variations by Age

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Abstract

Using the data from The Taiwan Youth Project (TYP), this study examined the impact of family structure: non-conflict families, conflict families, and single-parent families, on adolescent distress, and whether life events and family relations affect the relations between family structure and adolescent distress. Furthermore, we compared these effects on adolescents in 1st grade, and in 3rd grade of junior high school. Previous research led to hypothesize that adolescents of conflict families may have greater distress than those without conflict and those of single-parent families. Life events and family relations may mediate the impact of family structure on adolescents. These effects may change across adolescent age.

Findings indicated that adolescents in conflict families had the greatest levels of distress. Contrary to expectations, there was no significant difference in distress between adolescents in single-parent families and in non-conflict families. When adolescents became 3rd graders, life events mediated the relation between conflict families and adolescent distress. In addition, based on fit measures, the effects of family structure and life events on adolescent distress varied by age.

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Introduction

Because of the increase in divorce rate, single-parent families are becoming more and more common in Taiwan. According to the 1990 and the 2000 census data, single-parent households with children under age 18 increased from 174,000 to 197,000 (from 5.89 percent to 6.68 percent of households with children under age 18) (Hsueh, 2002). However, the proportion of single-parent families in Taiwan is still lower than other developed countries. As we know, compared to adolescents of two-parent families, adolescents raised by divorced parents are more likely to score low on measures of well-being (Amato and Keith, 1991; Amato, 2001). However, not all of two-parent families are harmonious and well-functioning. Do children have better well-being when they grow up in two-parent families with high marital conflict, or do they have better well-being when they live with divorced parents without marital conflict? Over the past decades, a number of social scientists tried to find the answer. In general, adolescents living in two-parent families with high parental conflict tend to have poorer well-being than those in divorced families (Mechanic and Hansell, 1989). Furthermore, parental divorce or separation may be beneficial to the well-being of adolescents who have experienced high parental conflict (Jekielek, 1998). Considering the long-term effects, in high conflict families, children also have better well-being in early adulthood if their parents divorced than those whose parents remained married (Amato, Loomis, and Booth, 1995). However, little is known about which mechanism mediates the effects of marital conflict and parental divorce on adolescent well-being, and whether there are age differences in the mediating processes.

To explore the pathways linking parental conflict and parental divorce to adolescent distress, we used Pearlin's the conceptual framework of the stress process (Pearlin, 1989, Pearlin, Lieberman, Menaghan, and Mullan, 1981) to conceptualize our research model. In this study, we conceived of parental conflict and parental divorce as primary stressors that make adolescents more facilitated with stressful life events and poorer family relations that are regarded as secondary stressors. Secondary stressors refer to a consequence of the primary stressors, and may be more stressful for people than primary stressors. For example, parental divorce for children is a primary stressor because children may feel that they have lost a dream of what a family should be. This psychological loss may increase the tension and conflict between children and custodial parents. In addition, they may be more likely to experience financial decline, decrease in parental support, or moving. Moreover, parental divorce also may increase the vulnerability to the effects of these secondary stressors. Thus, this study examined two mediating effects: life events and family relations on the relations between family structure and adolescent distress.

Although many studies indicated that the impact of parental divorce was more harmful to younger children than older children (Emery, 1988; Allison and Furstenberg, 1989), little is known about whether the impact of parental conflict and the mediating processes vary by age.

The objectives of this study are to explore whether family structure: non-conflict families, conflict families, and single-parent families, affects the levels of adolescent distress; whether life events and family relations mediate the impact of family structure on adolescent distress; and whether these effects change across adolescent age.

(Figure 1 about here)

Theoretical Model

Figure 1 provides the theoretical model that we proposed in this study. Previous research and theory let to hypothesize that family structure not only directly affect adolescent distress, but also indirectly affect adolescents through life events and family relations (Aseltine, 1996). Because non-conflict families serves as a reference, family structure includes two dummy variables indicating whether adolescents live in conflict families (ξ_1^1 in 1th grade = 1, ξ_1^3 in 3rd grade = 1) or not ($\xi_1^1 = 0$, $\xi_1^3 = 0$), and whether they live with single parents ($\xi_2^1 = 1$, $\xi_2^3 = 1$) or not ($\xi_2^1 = 0$, $\xi_2^3 = 0$). These two types of family structure are linked to adolescent distress (η_3^1, η_3^3) indirectly through life events (η_1^1, η_1^3) and family relations (η_2^1, η_2^3). Besides direct effects, there are three possible pathways linking the impact of family structure on adolescent distress. First, compared to adolescents in non-conflict families, adolescents in conflict families and single-parent families may be more likely to expose to stressful life events that increase emotional problems. Second, in conflict families or single-parent families, adolescents may have more distress because of poorer family relations. We also expect that life events may be associated with adolescent distress by poorer family relations. In addition, considering the effects of consequences of adolescents in 1st grade on adolescents in 3rd grade, we examine the effects of life events in 1st grade on life events (β_{11}^{31}), family relations (β_{21}^{31}), distress (β_{31}^{31}) in 3rd grade, the effects of family relations in 1st grade on family relations (β_{22}^{31}) and distress (β_{32}^{31}) in 3rd grade, and the association between distress in 1st grade and in 3rd grade (β_{33}^{31}). Several control variables are also presented in figure 1. We control adolescent gender, family income, parent's education, and the pressure of entrance exam in the analysis.

Direct Effects of Family Structure on Adolescent Distress

The hypothesized paths linking family structure to adolescent distress ($\gamma_{31}^1 > 0$, $\gamma_{32}^1 > 0$ in 1st grade; $\gamma_{31}^3 > 0$, $\gamma_{32}^3 > 0$ in 3rd grade) represent that marital conflict and parental divorce are positively related to the level of adolescent distress, even after controlling for the effects of life events, family relations, and other control factors.

Indirect Effects of Life Events

Adolescence is a transition period from childhood to adulthood. During this life-cycle stage, adolescents experience the major physical, social, and psychological changes. However, these changes, such as biological changes of puberty, exploration of sexuality, more involvement in peer groups, and becoming autonomy, may cause adolescents more stresses easily. In addition, adolescents are not only affected by the relations with other persons or environment, but they also concern about "self". When they feel lonely, humiliated, or dissatisfied with their appearance, they may be more sensitive to life events (Seiffge-Krenke, 1995).

Buchanan, Maccoby, and Dornbush (1996) found that the common stressful life events for adolescents were illness of close persons, changes in relations with peers (e.g. a fight with close friends or dating), instability of the family (e.g. moving or financial troubles), changes in schools, and violence.

Based on Pearlin's stress process perspective (Pearlin, 1989), one event may lead to other events or chronic strains, and people tend to experience the clusters of stressors made up of a variety of events and strains. According to the causal relationships among these stressors, primary stressors are the events or enduring stressors that people first experience, and secondary stressors refer to consequences of the primary stressors. In this model, we hypothesize that marital conflict and parental divorce are the primary stressors and life events are the secondary stressors. In other words, adolescents in conflict families or single-parent families are more likely to experience stressful life events (γ^{1}_{11}, $\gamma^{1}_{12} > 0$; γ^{3}_{11}, $\gamma^{3}_{12} > 0$) which lead to emotional problems (β^{1}_{31}, $\beta^{3}_{31} > 0$) than those in non-conflict families.

Indirect Effects of Family Relations

Adolescence is a physical, psychological, and social developmental period. The tasks of this life course for adolescents are to look for an identity, and become emotionally self-sufficient and autonomous from parents. On the other hand, adolescents start to expand their social relations and spend more time with extra-familial people, such

as friends, classmates, teachers, or coaches. Although emotional closeness with parents declines and conflict increases, parents and family cohesion are still the major support for adolescents while they face the stresses of growing up (Larson and Richards, 1994).

However, marital conflict and parental divorce may damage the parent-child relations and family relations, and increase adolescent distress. Wallerstein and her colleague (2000) carried out a twenty-five-year follow-up qualitative study of 93 children of divorce in 1971 and followed them throughout adolescence and into adulthood. She found that the adverse effects of divorce continued over time, and she argued that the persisting problems were the consequences of the loss of a stable family structure that was fundamental to children's development.

In this model, another indirect pathways linking family structure and adolescent distress are directly through family relations (γ^{1}_{21}, $\gamma^{1}_{22} < 0$, $\beta^{1}_{32} < 0$; γ^{3}_{21}, $\gamma^{3}_{22} < 0$, $\beta^{3}_{32} < 0$), or indirectly through family relations by life events (γ^{1}_{11}, $\gamma^{1}_{12} < 0$, $\beta^{1}_{21} < 0$, $\beta^{1}_{32} < 0$; γ^{3}_{11}, $\gamma^{3}_{12} < 0$, $\beta^{3}_{21} < 0$, $\beta^{3}_{32} < 0$).

Hypotheses

H1: Adolescents in conflict families have greater scores on psychological distress than those in single-parent families and non-conflict families.

H1a: Compared to adolescents in non-conflict families, adolescents in single-parent families have greater scores on distress than those in non-conflict families.

H2: Life events and family relations mediate the relations between family structure and adolescent distress.

H3: The direct effects of family structure and the indirect effects of life events and family relations vary by age.

Methods

Sample

Data for these analyses draw from the Taiwan Youth Project (the Institute of Sociology, Academic Sinica, Taiwan). This project is an eight-year longitudinal research with eight-wave surveys scheduled from 2000 to 2007. It consists of two-cohort students: 2696 1st graders of the junior high, and 2890 3rd graders of the junior high in 2000. In addition, one of their parents and their head master of the class were interviewed at the same year. In order to explore the growth trajectory of the youth, the research design focuses on three main social mechanisms of adolescent development: family, school and community, and how these mechanisms interplay.

The Taiwan Youth Project used a school-based, stratified sampling design. A sample of junior high schools in Taipei city, Taipei county and Yi-Lan county, stratified by the level of urbanization was selected. These three areas located in the northern part of Taiwan have different level of urbanization and different economic structure: Taipei city is the largest metropolitan city in Taiwan; Yi-Lan is a mostly agriculture-based county; and Taipei county is in-between these two regions. Thus, in the first stage, according to the level of urbanization, we divided Taipei city into three strata, Taipei county into three strata, and Yi-Lan county into two strata. In the second stage, based on the number of students registered in each stratum, we chose 40 schools from the pool: 16 schools from Taipei city, 15 schools from Taipei county, and 9 schools from Yi-Lan county. In each school, we randomly chose two classes in each grade and interviewed all students in the class. One parent of students, usually the mother (about 70%), and the head master of the class were also asked to fill out the parent questionnaire and the teacher questionnaire.

In this study, we analyzed the sample based on the surveys of 1st graders of the junior high in 2000 and their follow-up survey (wave 3) in 2002. In wave 1, 2696 first graders received the questionnaires, and about 99.79 percent (N = 2690) of students completed the student questionnaire in the class. In the wave 3, about 98.77 percent of the original sample (N=2663) completed the student questionnaire in the class. In order to compare two-parent families with divorced single-parent families, this study limits the

sample to adolescents living with two biological parents, divorced mothers, and divorced fathers. Other residential arrangements, such as stepfamilies, adopted families, widowed-mother families, or widowered-father families, are excluded. Because of missing sample in both surveys and because of listwise deletions of missing data on statistical procedures, our final sample includes 2123 students.

(Table 1 about here)

Table 1 shows the sample characteristics. In 1st grade of the junior high (Time 1), 86.4% of adolescents (N=1835) indicated that they lived in non-conflict families; 7.9% of adolescents (N=167) lived in conflict families; and 5.7% of adolescents (N=121) stayed with single parents. Conflict families had the greatest monthly family income (mean=4.18, about NT$60,000-69,999), followed by non-conflict families (mean=4.07, about NT$60,000-69,999), and single-parent families (mean=2.64, about NT$30,000-49,999). Meanwhile, compared to adolescents in non-conflict families and single-parent families, adolescents in conflict families were more likely to experience the pressure of entrance examination (about 78%), had more life events (mean=3.88, SD=1.95), experienced poorer family relations (mean=16.20, SD=4.68), and reported the highest score on psychological distress (mean=28.32, SD=10.3).

(Table 2 about here)

When these adolescents became 3rd graders (time 2), two years later, the proportions of conflict families and single-parent families were increased. About 10.5% of adolescents reported that their parents often argued or fought against each other in the past year (N=223), and 6.5% of adolescents lived with single parents (N=137). Table 2 shows the change in family structure between 1st grade (time1) and 3rd grade (time 2). Most of adolescents (84.9% of total) had no change in family structure. Specifically, about 77.3% of adolescents remained in non-conflict families until 3rd grade; 2.5% lived in conflict families until 3rd grade; and 5.1% of adolescents stayed with single parents until 3rd grade.

Looking at adolescent experiences and outcomes in table 1, compared to adolescents in non-conflict families and single-parent families, adolescents in conflict families were also more likely to have the pressure of entrance examination (87%), experienced poorer family relations (mean=14.54, SD=3.92), and had the greatest score on life events (mean=3.74, SD=1.86), as well as on psychological distress (mean=29.12, SD=9.87).

Measures

Distress. The measure of distress used in this study is based on the Symptoms Checklist (Derogatis, 1983). We asked adolescents to indicate whether they experienced the following physical conditions or depressive symptoms, such as headache, dizziness, feeling physically weak, soreness in muscles, often getting into a fight, trouble falling asleep, feeling depressed, feeling lonely, or thinking about suicide during the past week. The scale consisted of 16 items, with 5-point response ranging from 1 (Never) to 5 (Yes, extremely seriously). The sum of 16 items is the scale score, and the range is from 16 to 80. The higher the scores, the greater the levels of distress. The reliability of this scale is .88 in 1st grade, and the alpha of 3rd grade is consistent with 1st grade.

Life Events. The measure of life events was conducted by 13 items about adolescent negative life experiences in the past year. Adolescents were asked to indicate whether any of 13 events had happened to them. The events varied from personal experiences (e.g., illness or injury, or doing less well in school), family stresses (e.g., financial problems, or father/mother being laid off) to friend events (e.g., conflict with classmate, or breaking up with close friends). Response categories were 1 for yes and 0 for no. Because previous research indicated that cumulative number of unweighted life events consistently predicts psychological distress (Mirowsky and Ross, 1989), the total number of life events that adolescents experienced in the past year is the scale score. The higher scores, the more life events they had experienced.

Family relations. The scale of family relations was measured by 6 items about family cohesion. Adolescents indicated whether they agree or disagree with the

following statements about family life: “when making decision, family members would discuss it together; family members like to spend leisure time together; and when I am frustrated, family members would comfort me.” The values of response were from 1 (strongly agree) to 5 (strongly agree). In order to present the higher scores equal to the greater family relations, the values of items were reversed. The scale is the sum of these 6 items. The scores of the scale range from 6 to 30. The standardized alpha in 1st grade is .79, and the alpha in 3rd grade is .83.

Family Structure. Based on parental marital status, adolescent living arrangement, and marital conflict, family structure was grouped into three different types: non-conflict families, conflict families, and single-parent families. If adolescents lived with two biological married parents and did not experience interparental conflict in the past year, their families were regarded as non-conflict families. If two biological married parents often quarreled with or fought against each other in the past year, adolescents lived in conflict families. When adolescents lived with divorced single parents, disregarding parental conflict, their families belonged to single-parent families. In order to analyze the effects of family structure in regression, we created two dummy variables: conflict families (1= conflict families, 0 = others) and single-parent families (1 = single-parent families, 0 = others).

This study includes four control variables: adolescent gender, monthly family income, parent’s education, and pressure of entrance examination. All these control variables were controlled throughout the estimation of all statistic analyses. Because previous research suggested that *gender* difference was strongly associated with the levels of psychological distress (Avison and Mclalpine, 1992), this analysis included it as a control variable. *Family income* was measured by adolescents’ self-reports about monthly family income. The values of responses were from 1 (below NT$30,000) to 13 (above NT$150,000). Adolescents were asked to indicate their parents’ highest level of *education*. The range is from 0 (never went to school) to 7 (reached graduate school). In addition, because adolescents in Taiwan have to pass the competitive entrance examination in order to attend senior high school or senior vocational school, the

pressure of entrance examination is strongly associated with adolescent life experiences and psychological well-being. Thus, it was included in the analyses. Adolescents were asked to indicate whether they are under the pressure of entrance examination (1 = yes, 2 = no). In order to present the higher the value equal to the greater the level of pressure, the values were recoded into 1 for yes and 0 for no.

Statistical Analysis

In order to examine the hypothesized (direct and indirect) effects on adolescent distress, two statistical methods: multiple regression and structural equation modeling were used in this study. In the first step, we conducted a series of multiple regressions to assess the associations between adolescent distress and family structure and life events and family relations. All control variables were included in each model. This procedure provided a systematic examination to examine the effects of life events and family relations on the relationships between family structure and adolescent distress. In the second step, we used Analysis of Moment Structures (AMOS 4.0) program (Arbuckle & Wothke, 1999) with maximum likelihood estimation to evaluate the theoretical model (Figure 1). In addition, in order to examine whether the direct effects of family structure and the indirect effects of life events and family relations vary by age (1st grade versus 3rd grade), we compared hypothesized models (by constraining the same effects at 1st grade and 3rd grade to be equal) with the unconstrained full model. If the chi-square did not change significantly after we imposed these constraints, the hypothesized effects were invariant at 1st grade (time 1) and 3rd grade (time 2).

(Table 3 about here)

Results

Family Structure, Life Events, and Family Relations

In order to examine the effects of family structure on adolescent life events, we regressed life events on family structure, and controlled 1st grade life events in 3rd grade equations. Table 3 presents the results of the regression analyses for adolescent life

events. In the model 1 of 1st grade, after controlling for gender, income, parent's education, and pressure of entrance examination, compared to adolescents in non-conflict families, adolescents in conflict families and in single-parent families were more likely to experience life events, especially for conflict families. Looking at the results of 3rd grade, adolescents in conflict families and in single-parent families still had more life events than those in non-conflict families. While we added 1st grade life events into the equation, the unstandardized coefficients of conflict families and single-parent families slightly decreased, but still remained significant. Among these control variables, only gender and pressure of entrance examination had significant effects. Girls reported more life events than did boys, and adolescents who had the greater pressure reported more life events.

(Table 4 about here)

Table 4 shows the results of regression analyses for adolescent family relations. In the 1st grade, compared to adolescents in non-conflict families, adolescents in conflict families and in single-parent families had poorer family relations. However, in model 2 of 1st grade, after controlling for life events, the effect of single-parent families was not significant. In other words, life events mediated the effects of living with single parents on family relations. Among control variables, girls reported poorer family relations than did boys; the higher income, the better family relations; and parent's education was positively related with family relations. When adolescents became 3rd graders, after controlling for life events and family relations of 1st grade, and life events of 3rd grade, the effects of parental marital conflict still remained significant, but the effects of parental divorce were not longer significant (model 3 in 3rd grade). In addition, contrary to the results of 1st grade, boys reported poorer family relations than did girls in 3rd grade. It may be related to gender differences in physical and psychological development in adolescence. It is interesting that adolescents who felt greater pressure of entrance examination had better family relations. Together, these variables accounted for 28 percent of the variation in family relations.

(Table 5 about here)

Adolescent Distress on Family Structure, Life Events, and Family Relations

Table 5 presents the results of the association between family structure and adolescent distress. Looking at the results of 1st grade, contrary to expectation, there was no significant difference between adolescents in single-parent families and non-conflict families. In other words, compared to adolescents in non-conflict families, adolescents with single parents did not score higher on psychological distress at significant level. This result is not consistent with previous findings. The possible explanations will be discussed in the later section. On the other hand, even life events and family relations under control, adolescents in conflict families still showed greater distress than those in non-conflict families (model 4). Obviously, parental conflict had enormously adverse effects on adolescent psychological well-being. In addition, looking at the model 2 and the model 3, compared to the effects of family relations, the effects of life events had the greater impact on the relations between family structure and adolescent distress. For example, while life events under control, the unstandardized coefficient of conflict families reduced from 5.70 to 2.56. While family relations under control, the unstandardized coefficient of conflict families decreased slightly from 5.70 to 4.69. Among control variables, only gender and the pressure of entrance examination remained significant. Compared to boys, girls reported higher scores on distress. In addition, adolescents who felt greater pressure of entrance examination had more distress. These results are consistent with previous studies (Avison and Mcalpine, 1992). The final model of 1st grade explained 19 percent of the variation in adolescent distress.

In the results of 3rd grade, after controlling for the effects of life events, family relations, and distress in 1st grade, adolescents in conflict families still reported more distress than those in non-conflict families (model 3). While life events of 3rd grade added into model 4, the significant difference between conflict families and non-conflict families disappeared. When only family relations was added into model 5, the effects of conflict families returned to be significant. In model 6, after controlling for life events and family relations simultaneously, the effects of conflict families became not significant. In other words, the effects of conflict families on adolescent distress were

mediated by current life events. As adolescents grew older, the adverse effects of parental conflict diminished, whereas the effects of life events remained salient. With respect to control variables, the effects of gender and pressure of entrance examination were consistent with 1st grade. Beyond expectation, the greater family income, the more distress. These variables accounted for 33 percent of the variation in adolescent distress.

(Figure 2 about here)

Model Evaluation and Fit Comparisons

Figure 2 presents the unstandardized maximum likelihood estimates of the theoretical model (model 1: unconstrained full model). There are a variety of indices used to assess model fit. GFI, CFI, and RMSEA are commonly used. The GFI (goodness of fit index) and the CFI (comparative fit index) usually range in value from 0 to 1 with value above .95 indicating a good fit, and RMSEA (root mean square error of approximation) should be less than or equal to .05 as a good fit. The goodness-of-fit indices of the theoretical model were within acceptable ranges (GFI = .985, CFI = .971, RMSEA = .039).

(Table 6 about here)

In order to examine whether the effects of family structure, life events, family relations on adolescent distress vary by age, we conducted a series of fit tests to compare the theoretical model with other hypothesized (constrained) models. Model 2 was to test the null hypothesis: the direct effects of family structure on adolescent distress in 1st grade were not different from the direct effects in 3rd grade. In order to test this null hypothesis, we constrained the parameters from family structure to distress in 1st grade equal to the parameters in 3rd grade ($\gamma_{31}^{1} = \gamma_{31}^{3}$ & $\gamma_{32}^{1} = \gamma_{32}^{3}$). Compared to model 1, because the chi-square change was significant ($\Delta L^2 = 6.53$, $\Delta df = 2$, $p < .03$), this null hypothesis was rejected. In other words, the direct effects of family structure on adolescent distress varied by age. In order to examine the indirect effects of life events, we constrained the paths linking family structure and life events and distress in 1st grade equal to the same paths in 3rd grade ($\gamma_{11}^{1} = \gamma_{11}^{3}$ & $\gamma_{12}^{1} = \gamma_{12}^{3}$ & $\beta_{31}^{1} = \beta_{31}^{3}$). Compared to

model 1, the chi-square change was significant ($\Delta L^2 = 13.96$, $\Delta df = 3$, $p < .00$). The indirect effects of life events in 1st grade were significant different from in 3rd grade. Model 4 was to test the indirect effects of family relations. By constraining the parameters of family relations effects in 1st grade and in 3rd grade ($\gamma^{1}_{21} = \gamma^{3}_{21}$ & $\gamma^{1}_{22} = \gamma^{3}_{22}$ & $\beta^{1}_{32} = \beta^{3}_{32}$), we compared this hypothesized model to model 1. The results showed that the chi-square change was not significant ($\Delta L^2 = 2.99$, $\Delta df = 3$, $p = .39$). Thus, indirect effects of family relations did not vary by age. Model 5 was to test the indirect effects of life events through family relations ($\gamma^{1}_{11} = \gamma^{3}_{11}$ & $\gamma^{1}_{12} = \gamma^{3}_{12}$ & $\beta^{1}_{21} = \beta^{3}_{21}$ & $\beta^{1}_{32} = \beta^{3}_{32}$). Compared to model 1, because the chi-square change was significant ($\Delta L^2 = 11.85$, $\Delta df = 4$, $p < .01$), the null hypothesis was rejected. Finally, we compared all effects constrained model (model 6) to the theoretical model (model 1). There were a significant change between 1st grade and 3rd grade ($\Delta L^2 = 32.41$, $\Delta df = 9$, $p < .00$).

Discussion

The objectives of this study were to examine whether family structure, including non-conflict families, conflict families, single-parent families, affected adolescent distress; whether life events and family relations mediated the effects of family structure on adolescent distress; and whether these effects, including direct effects and indirect effects varied by age. Previous research led to hypothesize that adolescents in conflict families have the greatest scores on distress, followed by adolescents in single-parent families and adolescents in non-conflict families (Mechanic and Hansell, 1989). Furthermore, according to Pearlin's the conceptual framework of the stress process (Pearlin, 1989), we regarded marital conflict and parental divorce as primary stressors for adolescents. When adolescents encountered the primary stressors, they might be more likely to experience secondary stressors—life events and poorer family relations. Thus, we hypothesized that life events and family relations mediated the impact of family structure on adolescent distress. Finally, we used a series of fit measures to compare the effects of family structure on adolescents in 1st grade of the junior high (time 1) to 3rd grade of the junior high (time 2).

The results partially supported our hypotheses about the direct effects of family structure. After controlling for gender, family income, parent's education, and pressure of entrance examination, adolescents in conflict families had greater distress than those in non-conflict families. However, beyond expectation, there was no significant difference between single-parent families and conflict families. One possible explanation is the time of parental divorce. Previous research found that recent divorce had significantly stronger negative effects for children, and the impact of divorce might diminish over time (Hetherington, 2002). Another possible explanation is the parental conflict in predivorce. Adolescents in divorced families may experience high parental conflict during predivorce. Once parents divorce, adolescent well-being become better. However, we cannot examine these factors in this study because the data of TYP does not include this information. These possible factors should be explored in future research.

Mediators represent the mechanism that how and why the independent variables affect dependent variables. All direct effects should be significant in the first step. However, when a third variable (Z) is controlled, the direct relationship between independent variables (X) and dependent variables (Y) is no longer significant. Thus, this third variable is a mediator (Baron and Kenny, 1986). Based on the definition of mediating effects by Baron and Kenny (1986), life events and family relations did not serve as a mediator in 1st grade. However, because after controlling for these factors, the effects of conflict families decreased, life events and family relations were still regarded as indirect effects. When adolescents became older (in 3rd grade of the junior high), after controlling for life events, family relations, and distress in 1st grade, and life events in 3rd grade, the impact of conflict families became not significant. Thus, life events in 3rd grade mediated the effects of conflict families on adolescent distress.

Based on the fit measures, with the exception of family relations effects, direct effects of family structure, life events effects, and life events effects through family relations varied by age. When adolescents are getting older, the negative effects of parental conflict become weaker, but the influence of life events on adolescent distress becomes stronger. Adolescence is a transition period from childhood to adulthood.

Adolescents struggle to become autonomous individuals and to open family boundaries (Nichols and Schwartz, 2000). On the other hand, they spend more time with extra-familial people, such as friends, classmates, teachers, coaches, or other school members. Thus, family influence may diminish, and the influence of peer friends may strengthen in middle adolescence.

Figure 1: Theoretical Model

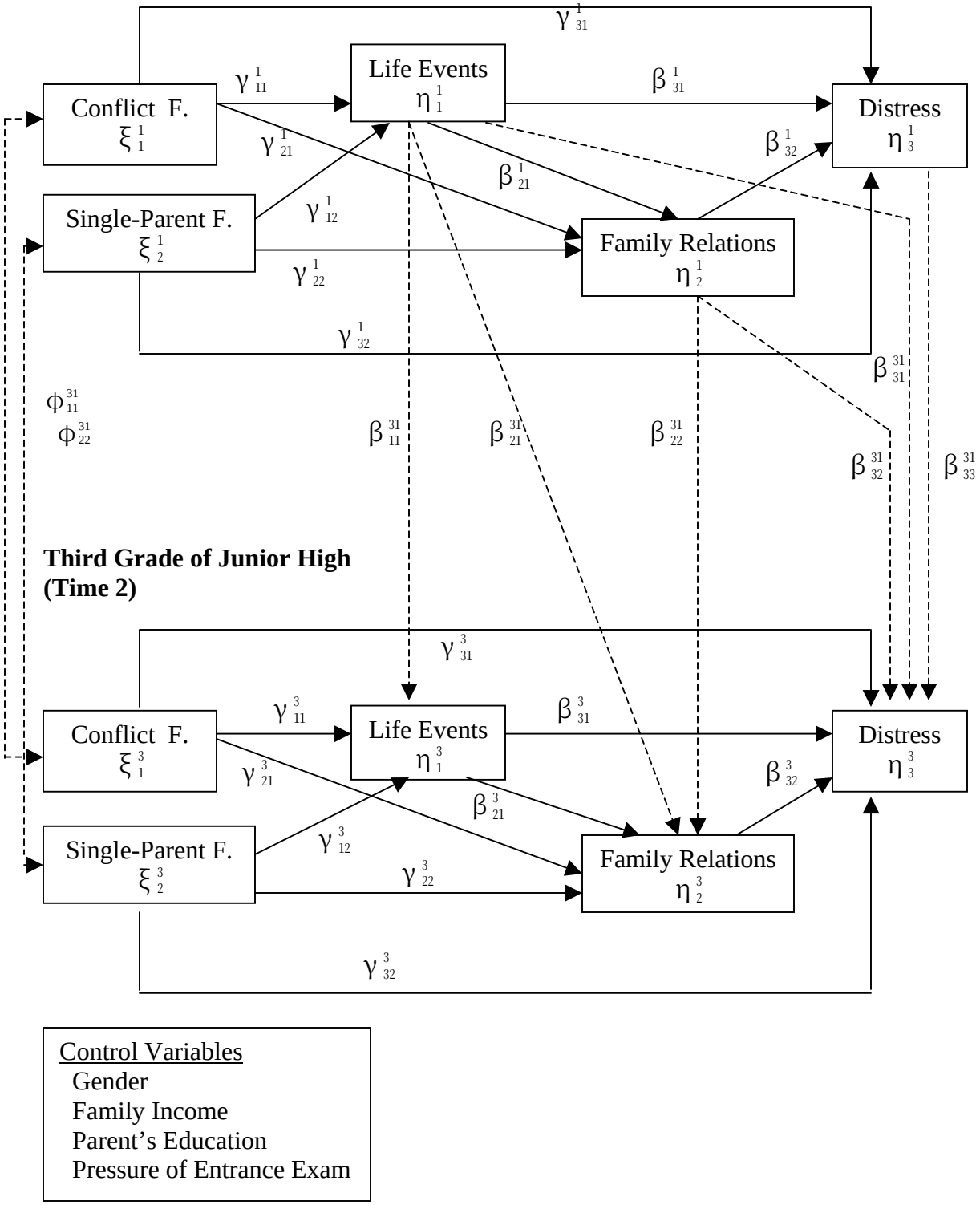


Table 1: Sample Characteristics

	Family Structure						
	Non-Conflict Families		Conflict Families		Single-Parent Families		Total
1st Grade (T1)	1835	(86.4%)	167	(7.9%)	121	(5.7%)	2123
Gender							
Girl	878	(47.8%)	87	(52.1%)	58	(47.9%)	
Boy	957	(52.2%)	80	(47.9%)	63	(52.1%)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	
Family Income	4.07	(3.04)	4.18	(3.25)	2.64	(2.07)	
Parent's Education	3.21	(1.69)	3.02	(1.82)	2.93	(1.51)	
Pressure of Entrance Exam	.75	(.43)	.78	(.42)	.69	(.46)	
Life Events	1.95	(1.56)	3.88	(1.95)	2.53	(1.77)	
Family Relations	18.57	(3.93)	16.20	(4.68)	17.54	(4.45)	
Distress	22.53	(7.16)	28.32	(10.3)	22.98	(8.37)	
3rd Grade (T2)	1763	(83%)	223	(10.5%)	137	(6.5%)	2123
Gender							
Girl	826	(46.9%)	131	(58.7%)	66	(48.2%)	
Boy	937	(53.1%)	92	(41.3%)	71	(51.8%)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	
Family Income	4.10	(2.97)	3.50	(2.93)	2.85	(2.51)	
Parent's Education	3.24	(1.72)	2.87	(1.56)	2.95	(1.47)	
Pressure of Entrance Exam	.83	(.38)	.87	(.34)	.79	(.41)	
Life Events	1.96	(1.60)	3.74	(1.86)	2.52	(1.77)	
Family Relations	17.22	(3.50)	14.54	(3.92)	16.42	(4.06)	
Distress	24.84	(7.89)	29.12	(9.87)	25.72	(8.57)	

Table 2: Change in Family Structure between 1st Grade (Time 1) and 3rd Grade (Time 2)

	3rd Grade (T2)			
	Non-Conflict F.	Conflict F.	Single-Parent F.	Total
1st Grade (T1)				
Non-Conflict F.	1641	168	26	1835
	77.3%	7.9%	1.2%	86.4%
Conflict F.	112	53	2	167
	5.3%	2.5%	.1%	7.9%
Single-Parent F	10	2	109	121
	.5%	.1%	5.1%	5.7%
Total	1763	223	137	2123
	83%	10.5%	6.5%	100%

Note: % of total

Table 3: Regression of Life Events on Family Structure

	1st Grade (T1)		3rd Grade (T2)			
	Model 1		Model 1		Model 2	
	B	s.e.	B	s.e.	B	s.e.
Conflict Families	2.11***	.13	1.80***	.12	1.63***	.12
Single-Parent Families (Non-Conflict Families as reference)	.66***	.16	.52***	.15	.38**	.15
Life Events (T1)					.25***	.02
Gender (Female=1)	.24***	.07	.26***	.07	.20**	.07
Family Income	-.01	.01	-.02	.01	-.02	.01
Parent's Education	.01	.02	-.03	.02	-.03	.02
Pressure of Entrance Exam	.33***	.08	.35***	.10	.28**	.09
Constant	1.60		1.73		1.33	
F	48.30***		47.76***		65.26***	
Adjusted R^2	.12		.12		.18	

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

Table 4: Regression of Family Relations on Family Structure and Life Events

	1st Grade (T1)				3rd Grade (T2)					
	Model 1		Model 2		Model 1		Model 2		Model 3	
	B	s.e.	B	s.e.	B	s.e.	B	s.e.	B	s.e.
Conflict Families	-2.35***	.32	-1.61***	.34	-2.62***	.25	-1.82***	.23	-1.39***	.24
Single-Parent Families (Non-Conflict Families as reference)	-.80*	.38	-.57	.37	-.66*	.32	-.25	.28	-.15	.28
Life Events (T2)									-.27***	.04
Life Events (T1)			-.35***	.05			-.16***	.04	-.10*	.04
Family Relations (T1)							.40***	.02	.39***	.02
Gender (Female=1)	-.50**	.17	-.42*	.17	.14	.16	.35*	.14	.40**	.14
Family Income	.13***	.03	.13***	.03	.07*	.03	.04	.03	.03	.03
Parent's Education	.11*	.05	.11*	.05	.15**	.05	.11*	.04	.10*	.04
Pressure of Entrance Exam	.18	.20	.30	.20	.59**	.21	.45*	.18	.53**	.18
Constant	17.78		18.35		15.91		9.16		9.70	
F	16.91***		21.48***		24.61***		97.15***		92.77***	
Adjusted R^2	.04		.06		.06		.27		.28	

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

Table 5: Regression of Adolescent Distress on Family Structure, Life Events, and Family Relations

	1st Grade (T1)							
	Model 1		Model 2		Model 3		Model 4	
	B	s.e.	B	s.e.	B	s.e.	B	s.e.
Conflict Families	5.70***	.60	2.56***	.60	4.69***	.59	2.00***	.59
Single-Parent Families	.54	.70	-.45	.67	.19	.68	-.65	.65
(Non-Conflict Families as reference)								
Life Events (T2)								
Family Relations (T2)								
Life Events (T1)			1.49***	.09			1.37***	.09
Family Relations (T1)					-.43***	.04	-.35***	.04
Distress (T1)								
Gender (Female=1)	1.63***	.32	1.26***	.31	1.41***	.32	1.12***	.30
Family Income	-.01	.06	.01	.05	.05	.06	.05	.05
Parent's Education	.09	.10	.08	.10	.14	.10	.12	.09
Pressure of Entrance Exam	1.30***	.37	.81*	.35	1.37***	.36	.91**	.35
Constant	20.52		18.14		28.16		24.49	
F	22.24***		58.96***		37.11***		64.04***	
Adjusted R^2	.06		.16		.11		.19	

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

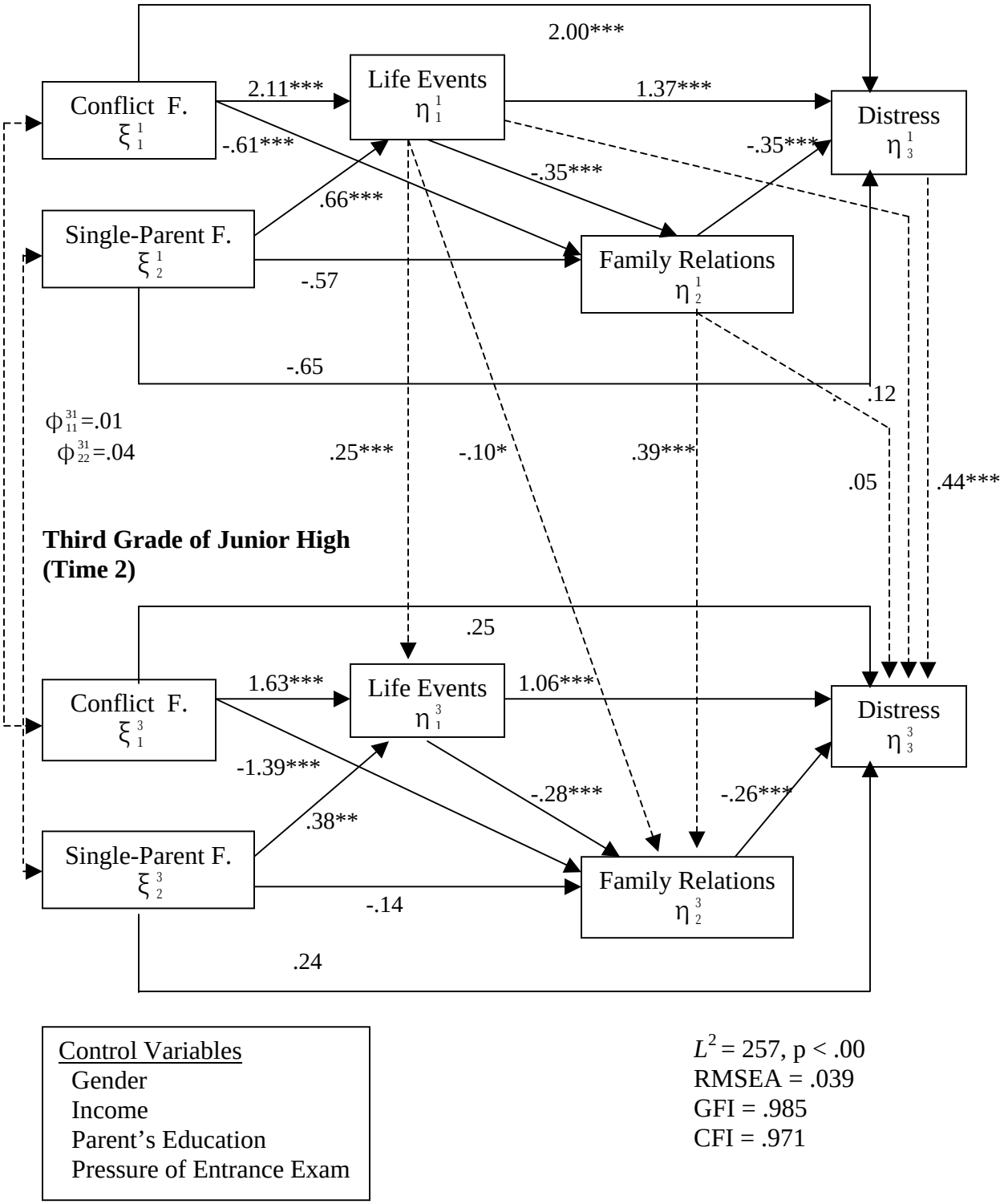
(Table Continues)

Table 5: Regression of Adolescent Distress on Family Structure, Life Events, and Family Relations (Continued)

	3rd Grade (T2)											
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B	s.e.	B	s.e.	B	s.e.	B	s.e.	B	s.e.	B	s.e.
Conflict Families	4.06***	.58	2.89***	.56	2.38***	.51	.61	.52	1.77***	.52	.25	.52
Single-Parent Families	1.09	.72	.29	.70	.71	.63	.28	.61	.62	.63	.24	.61
(Non-Conflict Families as reference)												
Life Events (T2)							1.13***	.09			1.06***	.09
Family Relations (T2)									-.34***	.05	-.26***	.05
Life Events (T1)			1.05***	.10	.38***	.10	.14	.09	.33***	.10	.12	.09
Family Relations (T1)			-.25***	.04	-.08*	.04	-.05	.04	.05	.04	.05	.04
Distress (T1)					.46***	.02	.44***	.02	.46***	.02	.44***	.02
Gender (Female=1)	2.14***	.35	1.78***	.34	1.25***	.31	1.05***	.30	1.38***	.31	1.16***	.30
Family Income	.14*	.06	.15*	.06	.10	.06	.12*	.05	.11*	.06	.13*	.05
Parent's Education.	-.01	.11	.02	.11	-.02	.10	.01	.09	.02	.10	.03	.09
Pressure of Entrance Exam	1.40**	.47	1.23**	.45	1.05*	.41	.72	.40	1.21**	.41	.86*	.40
Constant	22.11		24.74		13.31		11.59		16.56		14.23	
F	18.21***		36.61***		87.16***		99.03***		85.04***		94.05***	
Adjusted R^2	.05		.12		.27		.32		.28		.33	

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

Figure 2: Unconstrained Full Model



Control Variables
- Gender
- Income
- Parent's Education
- Pressure of Entrance Exam

L^2 = 257, p < .00
RMSEA = .039
GFI = .985
CFI = .971

Table 6: Fit Measures

	L^2	*df*	*p*	RMSEA	GFI	CFI
M1: Unconstrained Full Model	257.00	61	.00	.039	.985	.971
M2: Direct Effects Constrained ($\gamma^1_{31} = \gamma^3_{31}$ & $\gamma^1_{32} = \gamma^3_{32}$)	263.53	63	.00	.039	.985	.971
M3: Life Events Effects Constrained ($\gamma^1_{11} = \gamma^3_{11}$ & $\gamma^1_{12} = \gamma^3_{12}$ & $\beta^1_{31} = \beta^3_{31}$)	270.96	64	.00	.039	.985	.971
M4: Family Relation Effects Constrained ($\gamma^1_{21} = \gamma^3_{21}$ & $\gamma^1_{22} = \gamma^3_{22}$ & $\beta^1_{32} = \beta^3_{32}$)	259.99	64	.00	.038	.985	.971
M5: Events → Relations Effects Constrained ($\gamma^1_{11} = \gamma^3_{11}$ & $\gamma^1_{12} = \gamma^3_{12}$ & $\beta^1_{21} = \beta^3_{21}$ & $\beta^1_{32} = \beta^3_{32}$)	268.85	65	.00	.038	.985	.970
M6: All Effects Constrained ($\gamma^1_{31} = \gamma^3_{31}$ & $\gamma^1_{32} = \gamma^3_{32}$ & $\gamma^1_{11} = \gamma^3_{11}$ & $\gamma^1_{12} = \gamma^3_{12}$ & $\beta^1_{31} = \beta^3_{31}$ & $\gamma^1_{21} = \gamma^3_{21}$ & $\gamma^1_{22} = \gamma^3_{22}$ & $\beta^1_{32} = \beta^3_{32}$ & $\beta^1_{21} = \beta^3_{21}$)	289.41	70	.00	.038	.984	.968

Comparisons

Null Hypothesis Tests	ΔL^2	Δdf	*p*
M2-M1: H_0: direct effects are not different between 1st grade and 3rd grade.	6.53	2	.03
M3-M1: H_0: life event effects are not different between 1st grade and 3rd grade.	13.96	3	.00
M4-M1: H_0: family relations effects are not different between 1st grade and 3rd grade.	2.99	3	.39
M5-M1: H_0: life event effects through family relations are not different between 1st grade and 3rd grade.	11.85	4	.01
M6-M1: H_0: all effects of 1st grade are equal to 3rd grade.	32.41	9	.00

Note: RMSEA = root mean square error of approximation
GFI = goodness of fit index
CFI = comparative fit index

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