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Chin-Chun Yi, Chyi-In Wu, Ying-Hwa Chang and Ming-Yi Chang
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The Psychological Well-Being of Taiwanese Youth

*School versus Family Context from
Early to Late Adolescence*



Chin-Chun Yi, Chyi-In Wu, and Ying-Hwa Chang

Academia Sinica

Ming-Yi Chang

National Taiwan University

abstract: This study examines the growth trajectory of the psychological well-being of Taiwanese adolescents from early to late adolescence. Under the competitive educational system in Taiwan, family and school context are two major loci accounting for the developmental outcome. Data are taken from the Taiwan Youth Project, which is a longitudinal panel study of 2696 students since the year 2000. The study uses individual depressive symptoms as the dependent variable. Family cohesion, family educational strategy as well as classroom effects at school are chosen to indicate the potential contextual influence. Using the latent growth curve method, the analysis confirms that family and school factors do produce different effects over time. Family context is salient at the initial status, but not for subsequent development. Class cohesion as well as adolescents' perceptions of unfairness by teachers determine the depressive level, the linear slope and the non-linear quadratic growth curve. In other words, once the adolescent gets used to junior high school, the school context tends to exert more pronounced effects. Further analysis on gender comparisons indicates that selective family and school effects are more pronounced among females, with a greater degree of depressive symptoms over time. The article concludes that while family and school have different impacts on the growth curve of individual depressive symptoms, the school context exerts salient effects over an adolescent's life course.

keywords: adolescent development ♦ classroom effect ♦ educational competition
♦ family educational strategy ♦ psychological well-being

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The Research Issue

Numerous youth studies in social science examine important subjects such as academic achievement and occupational experiences, peer and parental influence or friendship networks, intergenerational transmission on values and behaviours, deviance and physiological reaction, leaving the parental home, etc. (Furstenberg, 2000; Gecas and Seff, 1990; Rusconi, 2004; Yi et al., 2004, 2006). Beyond these shared concerns, there is a unique social background in the East Asian region that affects adolescent growth and deserves systematic investigation – the competitive educational system. In societies that place a high value on educational achievement, the expected role for an average youth aged 12–18 is always clear – study hard, get ahead in the entrance examinations and bring glory to the family; this is in accord with traditional values (Hsu, 1971).

Take Taiwan for example. Educational competition not only imposes unequivocal expectations on adolescents, it actually conditions their life experiences. With long hours of study at school during the daytime, at cram classes in the evening and over the weekends, Taiwanese adolescents sacrifice recreation and leisure time for the goal of academic excellence (Yi and Wu, 2004). However, the potential effect this educational competition has on the growth trajectory of adolescents is seriously underinvestigated. An attempt is thus made in this study to argue and to verify the extent of the constraints imposed by educational competition upon the developmental outcome for Taiwanese youth in this particular life course.

The most salient marker of educational competition in Taiwan are the two comprehensive entrance examinations in the middle school stage. As higher educational institutions have expanded substantially since the mid-1990s, getting into the desired senior high school has become more competitive than entering college. Situated in this competitive educational context, Taiwanese youth face pressure to achieve from parents at home as well as the performance demands from teachers and classmates at school. Furthermore, the educational pressure at school may increase year on year as students approach the entrance examinations. Hence, this study intends not only to compare family vs school influence, but also to delineate a possible increase of the educational pressure on the adolescent's developmental course.

In order to illustrate the significance of the educational context, this article examines changes in individual outcomes from junior high (7th–9th grade) to senior high (10th–12th), when an entrance examination takes place at the end of each stage. Psychological well-being is used as the outcome variable. For longitudinal panel data, the developmental course of psychological well-being is undoubtedly a most suitable indicator that captures both subjective and objective reactions of adolescents to the external environment.

Therefore, delineating the onset of individual psychological well-being and tracing its development over time, especially the possible fluctuation towards the end of junior and senior high school, allow us to ascertain the extent of the developmental outcome of adolescents being shaped by the dominant educational norms.

The Psychological Well-Being of Taiwanese Youth

Individual psychological well-being has been studied from various perspectives. Besides the general happiness level or other composite scales (Amato and Sobolewski, 2001; Liao et al., 2005), depression or depressive symptoms are perhaps the most reported phenomena (Brown, 2000; Turner, 1982; Wu and Lei, 2003). From the life course perspective, academic performance and psychological well-being are two very important outcomes for a typical adolescent. For Taiwanese youth, the well-being issue is of particular significance due to the competitive educational environment. It will be interesting to find out what kind of impact the entrance examination and its familial and school context have on adolescents' psychological state.

Previous studies seem to put more emphasis on how family and school resources affect the academic as well as the subsequent occupational development of the youth (Coleman, 1987, 1991; Crosnoe, 2004; Epstein, 1991, 1992; Hetherington, 1998; Sewell and Hauser, 1975; Teachman, 1987). On the other hand, the psychological well-being of the youth is an equally important consequence but has not received adequate investigation. Among these reports, more attention has been focused on how parental and peer influences, especially the emotional connection or the interpersonal relationship quality, affect the mental state of the youth (Denny et al., 2004; Fitzpatrick et al., 2005; Haavet et al., 2005). This article intends to broaden the existing literature from effects of interpersonal context to educational context. An index of depressive symptoms is used as the psychological outcome of the developmental trajectory of the youth. In addition, since the growth trajectory of psychological well-being may be highly associated with the academic outcome for teenagers, relevant factors pertaining to the family and school context are analysed and compared for their relative importance in explaining varying levels of depression in Taiwanese adolescents.

The Family Context

Family is a significant socialization agent for adolescents. It has been proposed that family resources and family-based social capital influence the developmental outcome of youth, especially in educational and occupational achievement (Coleman, 1987, 1991; Crosnoe, 2004; Epstein, 1991, 1992; Hetherington, 1998; Sewell and Hauser, 1975; Teachman, 1987). One

particularly important form of family capital accounting for the better functioning of youth is the parental involvement at home or at school (Coleman, 1991; Horn and West, 1992; McNeal, 1999). However, it is also documented that the utility of parental involvement depends on the emotional component of parent-adolescent relations (Call and Mortimer, 2001; Carbonaro, 1998; Crosnoe, 2004; Crosnoe and Elder, 2004). In other words, family relations assume a vital role in shaping the developmental trajectory of adolescents.

Undoubtedly, family relations are the most salient factor resulting in the general psychological well-being of the youth. For example, parent-adolescent relations are demonstrated to have significant influence on different aspects of growth. Parental support is clearly another important aspect of family relations and has been repeatedly shown to be positively related to better cognitive, behavioural and psychological outcomes (Fitzpatrick et al., 2005; Gecas and Seff, 1990). Overall, the effect of family support as an important form of social capital serves as a protective factor reducing negative symptoms for the youth. This argument fits well with the buffering hypothesis proposed by Wheaton (1983, 1985), in that family support provides a buffering function against hazardous circumstances. Empirical evidence also verifies that family support and caring are crucial for healthy youth development, especially for those exposed to a risky environment (Denny et al., 2004).

Nevertheless, most relationship variables remain at the dyadic level between a youth and one of his or her significant others. Since the family culture and normative environment embedded in daily family interaction usually exert important influences, it is imperative to examine the family relationship quality at the family level. In other words, whether family members usually cooperate with and support each other, or compete with and act hostilely to one another, can be regarded as a structural opportunity or constraint at the family level, and needs to be considered in explaining the individual's psychological well-being. Hence, it is expected that levels of family cohesion will contribute to the present as well as to the future quality of adolescent development.

Another aspect at the family level for the development of youths is social class differences, reported to result in different family and school experiences (Lareau, 1987, 2003). Youths with fewer resources tend to have less cognitive stimulation at home and limited extra-curricular activities after school. In addition, although there are reports indicating the importance of a positive school environment for the success of disadvantaged students (Lee and Smith, 1997), more studies seem to suggest that the effect of parental resources is magnified for upper-class, advantaged students, but less likely to be transmitted for students with fewer resources (Crosnoe, 2004; McNeal, 1999; Morgan and Sorensen, 1999; Schneider and Coleman,

1993). Whether social class difference also affects an adolescent's psychological well-being deserves systematic study. Moreover, it will add to the sociological explanation if social class is incorporated in the analysis.

Parental control, especially in the form of monitoring behaviour, has produced inconsistent findings. The key perhaps lies in the perception of the youth. Adolescents seeking greater freedom from parents may perceive parental control as coercive, and react negatively to a parent's authoritarian control (Baumrind, 1978; Bulcroft et al., 1996; Peterson and Rollins, 1987). But for those who experience both a high level of support and inductive control from parents, the caring aspect of the authoritative parenting may be perceived, and consequently may result in positive outcomes as well as identification with parents (Gecas and Seff, 1990; Maccoby and Martin, 1983; Owens et al., 1996). In the same vein, a similar and related concept denoting the more restrictive parenting style in the Chinese context – termed *guan* – needs to be considered (Chao, 1994; Shek, 1998). The major argument here is that *guan* is a culturally prescribed parental responsibility, and children who are objects of the socialization process are likely to perceive the positive aspect of parental control. But the validity of *guan* in terms of the expected positive outcome for the growth of adolescents awaits further empirical examination. Since monitoring behaviour is the most frequently observed parental practice in the Chinese context, it is of interest to examine the possible linkage between this typical parenting behaviour and the psychological outcome of Taiwanese adolescents.

Results from a Taiwanese setting show that within the family context, family relations – more so than family structure or significant family life events – appear to be the most significant factor explaining adolescents' depression (Jou and Hsieh, 2004; Pan et al., 2004). Depression is further specified by different trajectories (Wu et al., 2004) and factors accounting for its developmental patterns are shown to vary by different family dyadic relations (Jou, 2005; Wu and Li, 2001). In addition, family support, with its expected buffering effect, is found to intervene between stressors and the well-being of the youth (Jou and Hsieh, 2004). More extreme negative family experiences, such as family disruption, or physical or emotional neglect, result in depression as well as other destructive behaviours (Wu and Lei, 2001, 2003; Wu and Li, 2001). It is clear that the aforementioned research concern mostly relies on typical relationship qualities between family members. To investigate the less studied family cohesion, beyond the dyadic level, will contribute to our overall understanding of the dynamic process occurring within the family context. Furthermore, given the non-individualistic orientation of Taiwanese society, the analysis of family cohesion as well as the family educational strategy in the context of educational competition will add important value to the current literature on potential familial effects for the psychological outcome of youth.

The School Context

It has been proposed in several studies that the school environment is an important form of social capital, resulting in a different growth trajectory for the youth (Crosnoe et al., 2003; Harris et al., 2002; Morgan and Sorensen, 1999). Crosnoe (2004) specifies various kinds of school-based social capital (e.g. student–teacher bonding), including family-related social capital at the aggregate level (e.g. parents' average educational level), and argues that this type of social capital affects the academic outcome of adolescents. However, perhaps due to limited data availability, most research on school-related social capital is limited to various forms of parental involvement. Direct measurement of the school context is rarely observed. Therefore, an attempt is made here to study important agents at school and to take into account the competitive normative environment within the school context. It is expected that by examining both cultural and behavioural aspects of the school context, mechanisms affecting the consequent growth trajectory of youth may be derived.

Most adolescents worldwide spent a substantial amount of time at school. School experiences, especially involving peers and teachers, are assumed to play a vital role in youth development. Take psychological well-being or depression studies, for example. Individual factors such as school grades, peer relations, interaction with teachers, feelings towards school, school or class factors such as violent or threatening circumstances, pressure to succeed at school and the class deviance level (Denny et al., 2004; Fitzpatrick et al., 2005; Haavet et al., 2005; Jessor, 1993; Wu and Lei, 2005) have been shown to produce significant effects on depressive symptoms. These studies encompass adolescents ranging from minorities in the US and students in a Scandinavian city, to alternative education students in New Zealand and typical middle-school students in Taiwan. It can be seen that a common concern centres on factors effective for risk-reducing experiences. Also, both individual performance at school as well as the class culture or practices are considered important aspects to be included in such research.

Furthermore, having someone at school whom adolescents can turn to in times of need or who is perceived as a caring person significantly enhances psychological adjustment (Fitzpatrick et al., 2005). Here, the teacher enters as a potent agent, contributing to the better adjustment of adolescents at school. A supportive teacher can increase the feeling of safety for the students (Jou and Hsieh, 2004) and will thus reduce the risk of depression (Wu et al., 2004). Peer groups, as important reference groups, also produce varying effects on the academic and social developmental trajectory of youth (Bassis, 1977; Cairns et al., 1995; Kane and Rouse, 1999; Marsh and Parker, 1984; Wigfield et al., 1998). In addition, Taiwanese findings evidence the importance of class context in the account of individual deviant behaviours of adolescents (Wu and Lei, 2005). It is thus contended that at the

aggregate level, class culture, whether it be cooperative or competitive, will have an impact on an adolescent's psychological outcome. Since the latter perspective has been less explored, this article makes a special effort to examine how class cohesion as well as inter-class competition function in the developmental course of an adolescent's psychological well-being.

It should be noted that although family and school context are important sources accounting for the adolescent's growth trajectory, their relative effects are not certain. Earlier studies have proposed that parental influence, relative to that of peers, exerts greater impact on the educational and occupational plan, but peer influence sustains its importance in lifestyles and other behavioural dimensions (Gecas and Seff, 1990; Reed et al., 1986; Smith, 1985). More recent reports support the dominance of peer influence, but families are also shown to practise indirect influence through management strategies, including selecting suitable environments for adolescents to spend time (Furstenberg, 2000; Harris, 1998; Lareau, 1987). Therefore, in this article family vs school effects are compared in explaining the developmental trajectory of individual psychological well-being. Furthermore, specific factors are delineated in terms of their relative importance for short- vs long-term effects. Our results provide a basis for further analyses of the linkage between school vs family context and the consequent growth trajectory of the youth from the life course perspective.

Aim of the Present Study

This article utilizes longitudinal panel data to investigate the developmental course of the psychological well-being of Taiwanese youth over time. Depressive symptoms are taken as the indicator of psychological well-being, and the trajectory of depressive symptoms from early adolescence (i.e. 12–13 years old or first year of junior high school) to later adolescence (i.e. aged 18–19) is the time span for examination. Given the particular educational system in Taiwan, the high school entrance examination taken by junior high students at the end of their third year is assumed to be the time of maximal stress, leading to the critical point of depressive symptoms for the majority of adolescents. Our analysis therefore locates the beginning status of the depression level, follows the linear changing growth curve and tries to capture the possible fluctuating quadratic changes thereafter. It is expected that the psychological state of adolescents at this particular point of the life course varies by family and school-related factors, particularly those reflecting the aggregate and beyond the interpersonal level. Furthermore, the family and school strategies practised in the competitive educational environment during junior high years are presumed to have latent consequences on the individual's psychological well-being for subsequent years, despite the outcome of the entrance examination.

In short, this study examines the developmental trajectory of depressive symptoms for Taiwanese youth. Among its goals are:

- To specify the relative importance of family vs the school context in explaining the developmental course of depressive symptoms over time.
- To illustrate the competitive educational environment as the structural constraint affecting the general growth trajectory of Taiwanese youth.
- To focus on the group-level effects from the family and school contexts.
- To utilize the latent growth curve method suitable for the longitudinal panel data and follow the sample from early to later adolescence.

Methods

Data and Sample

The data are derived from a longitudinal panel study titled 'The Taiwan Youth Project' conducted by the Institute of Sociology, Academia Sinica, Taiwan. The first phase of this project was from 2000 to 2007, with eight annual surveys. The entire sample includes two cohorts, first-year (J1) and third-year (J3) junior high students in the year 2000. Three regions in northern Taiwan were selected as the research loci: 1000 students from Taipei City (the largest metropolitan city in Taiwan); 800 students from Yi-Lan County (a mostly agricultural area); and 1000 students from Taipei County (where economic activities include industry, manufacturing and agriculture). Another predetermined sampling principle was to sample the whole class, which would enable one to trace important transitions over the middle school years, such as friendship formation and changes.

Multi-stage stratified cluster random sampling was applied. Different urbanization levels were used to distinguish basic sampling strata with three tiers for Taipei City and Taipei County, and two tiers for Yi-Lan County. Within each stratum, the expected sample size was derived from the proportion of students in that stratum out of all students in the city or county. The next step was to calculate the mean number of students in the class for that stratum so as to decide the number of classes to be chosen. Since a prior decision was to have two classes from each school, once we had the number of classes required for a specific stratum, the number of schools could be attained. Finally, a random process was used to select both schools as well as two classes of junior 1 and junior 3 in each school. The final sample comprised all students in the class.

Forty junior high schools constitute our sampling frame, with 16 in Taipei City, 15 in Taipei County and nine in Yi-Lan County. First-year junior high students in a total of 81 classes (including one special class of physical education) make up our survey sample for the purpose of the present analysis. The first wave survey includes 2696 first-year junior high students as well

as one of their parents and their designated teacher for the class in the year 2000. After six waves, most samples have gone through the mandatory junior high years (Wave 1 to Wave 3) and entered senior high years (Wave 4 to Wave 6). From the Wave 4 survey, 46 percent were in high school and 50 percent in vocational high school or five year college, so the proportion not remaining in senior school is small. In other words, although not all students succeed in the entrance examination by entering their desired high school, the overwhelming majority remain in the school context. The response rate reveals a steady decline from 99.78 percent, 98.89 percent, 95.92 percent, 87.73 percent, 75.22 percent to 68.27 percent in 2005. As can be seen, the attrition rate mostly occurs in the senior high stage when samples are no longer in the same class or same school. Still, the rate is comparable to other large-scale surveys over the six waves' period.

Variables

Adolescent Depressive Symptoms The measure of adolescent depressive symptoms in this study is taken from the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1983). The short version of the SCL-90-R is used, which includes seven items measuring how frequently various depressive symptoms such as headache, loneliness, depressed mood, insomnia, numbness in some parts of the body, feeling as if something is sticking to your throat and weakness in some parts of the body occurred during the past week. Each item is rated on a five-point scale from 1 'never' to 5 'oftentimes'. Seven items are summed to create a depressive symptom score. The Cronbach alphas for this scale over the six waves range from .71 to .79, and the mean score ranges from 2.02 to 4.55.

Family Cohesion Selected cohesive behaviours at the family level are asked about each year during the junior high years. Adolescents answer whether the following four statements fit with their own family situation: 'In our family, we have a discussion when making decisions'; 'Every family member participates in family-related activities'; 'I can always receive comfort from my family when I feel frustrated'; 'I can rely on my family when I need help or advice'. Four-point ordinal categories are used, with 1 being the lowest fit. The scale construction shows alphas of .76 to .79 over the three-year period during junior high. This family-level variable represents the normative or cultural familial environment for adolescents, and is expected to have a direct impact on an individual's depression syndrome over time.

Family Educational Strategy As mentioned in a previous section, the entrance examination for senior high school is perhaps the most competitive and stressful event for most Taiwanese adolescents. In order to capture

the family dynamics in the process, a scale of relevant, specific strategic items is constructed. Family educational strategy may be conceived as family practice in accordance with the social norm of being responsible and caring parents, and is often exercised with an aim to help children to prepare for the entrance examination. Family strategy is usually initiated by parents and involves the adolescent (the exam-taker) as well as other family members. Hence, family strategy can be regarded as a common normative practice, which varies according to different family resources, with higher SES families having more resources to provide better physical facilities.

The scale is composed of family accommodation (e.g. parents reduce their own television watching time, cut down social activities, ask other family members to give way to the adolescent's needs), physical provision (e.g. provide more nourishing food, arrange a better space for study) and behaviour monitoring (e.g. limit play time, limit television time, limit phone and internet conversation, screen who the adolescent should interact with). Preliminary results show that (1) parents and youth have different perceptions of the family strategy used: parents tend to perceive more family accommodation practised and less behaviour monitoring, while youth have reverse reports, but both parties coincide with high scores on physical provision; (2) family strategy is significantly related to family resources: positive association is found between father's education, family income and various family strategies used, particularly the physical provision and behavioural monitoring (Yi et al., 2004).

For the present analysis, we focus on the behavioural aspect. This is because a significant difference between parents and adolescents on this subscale is found, and children report the highest degree of being constrained in various activities due to the parental demands. Since parents tend to believe that such an enforced educational strategy helps children to concentrate better on studying, it is interesting to explore whether the educational competition perceived by both parties and reacted to by parents with specific demands at home has an important impact on an individual's mental health.

The four questions asked are: 'Do your parents limit your TV watching time?'; 'Do your parents limit your play or going out time?'; 'Do they screen the friends you have interactions with?'; and 'Do they regulate your daily schedule?' With yes/no answers, the mean score gradually decreases from 2.19, 2.12 to 1.68, and the alphas for the three years range are .60, .61 and .67. The longitudinal impact of parents monitoring adolescent behaviours over junior high years is specified in order to verify if these typical Chinese parenting practices are perceived of by the youth as 'caring' rather than controlling only.

School Class Cohesion School class is contended to be an important unit in studying the growth trajectory of Taiwanese youth. When an

adolescent enters junior high school, he or she is assigned to a specific class, and that class becomes the immediate school environment. Since all courses are taught within the same classroom, the school class provides the closest school experiences for the next three years. We are interested in finding out the potential impact the school class of early adolescence in junior high produces for the short-term as well as the long-term effect.

Three statements are presented to assess adolescents' perception of the class situation: 'In my class, my classmates always help me whenever I need them'; 'I don't like to interact with my classmates'; 'Our classmates are close to one another as if we were a family'. Class cohesion is reported at the class level and is assumed to reflect the class culture, which may serve as an opportunity facilitator or constraint on the individual's psychological state. This score is included for three consecutive junior high years. Answers from four ordinal categories are added to derive a cumulative score for every sample with a mean of 9.04, 7.08 and 9.11. The alpha score is .58, .63 and .69.

Inter-Class Competition Amid the pressure from the imminent entrance examination, adolescents are simultaneously exposed to inter-class competition at school. There are typically three tests during each semester, and most junior high schools will rank the average score for each class in the same year (e.g. junior 2) as an incentive to encourage diligent studying and to improve the class grade. Thus, class ranking serves as a progress indicator of academic performance at the group (or class) level. Teachers and students are aware of the relative ranking of their own class against other classes. Hence, each year during junior high the following question is asked: 'Compared with other classes of the same year in your school, how is the academic performance of your class?' A five-point subjective evaluation scale is provided with 1 being 'much worse' and 5 being 'much better'. The average score is between 2.82 and 2.90. This question denotes one aspect of the school culture. In other words, class cohesion and class competition at school are considered fundamental aspects in an adolescent's daily experience.

Unfair Treatment by Teachers In junior high schools in Taiwan, each class is assigned a teacher for the whole three-year period. This designated class teacher, besides teaching his or her specialized course to this class and other classes in the same year, is also responsible for administrative management as well as academic performance. Since class ranking is important for the status and the evaluation of the designated class teacher, it is not uncommon for teachers to show more favourable attitudes towards students with good academic scores. Whether unintentional or intentional, this often arouses feelings of unfairness among the students and may influence an individual's psychological well-being, especially when facing an exam or under pressure to improve academic performance.

It is thus hypothesized that teacher favouritism may produce positive effects for those who benefit from it and negative consequences for those who perform less well academically. Since junior high is a critical stage in the development of self-perceptions, we suspect that treatment by a teacher in early adolescence may influence one's mental state even at later stages. Hence, a specific question is asked: 'In your class, is the designated teacher usually nicer to classmates who have better grades?' Answers are coded so that 'always', 'often', 'occasionally' and 'never' denotes the degree of the unfair treatment by the teacher as perceived by the student. We used the first two years of responses, with a mean of 1.84 and 2.12, indicating a slight increase of perceived unfairness.

Academic Performance For a typical Taiwanese student, better grades not only bring better treatment at home and at school, but also result in higher self-esteem (Hu, 2004; Wu et al., 2006). Within this competitive educational environment, other talents and special interests such as art and sport are not a priority in the life experiences during adolescence. Hence, if academic performance is a significant factor affecting an adolescent's psychological well-being, it is definitely more so in the Taiwanese context. The salient effect of academic ranking or performance is thus incorporated and is a control variable in the model. For this variable, individual's average academic score of the last semester is used in the analysis. Five ordinal answers are provided – among the top 5 in the class, rank 6–10, 11–20, 20–30 and below 30 in ranking. After reverse coding, the mean is relatively stable, with 3.2 for the first three years in junior high school.

Father's Education It is often noted that a student's academic performance is closely associated with the family's SES (Chang and Yi, 2004; Huang, 2004; Liu, 2006; Sun and Huang, 1996). Since this study investigates specific group effects of the family and school context, family SES will be treated as the control factor. We use father's education as the indicator. Among seven educational categories, the mean education level is 3.25.

Data Analysis

As can be seen from Figure 1, there is a clear pattern that while adolescents report more depressive symptoms in the third year of both junior high and senior high, there is a sharp decline at graduation from junior high. Nevertheless, this overall average curve may vary between individuals. As shown in Figure 2, when a random samples of 50 is drawn, the individual variation is evident. Different patterns including linear progressive and counter-development lines, a uni-modal trend, as well as flat low curves can be observed. In contrast with the ordinary linear regression

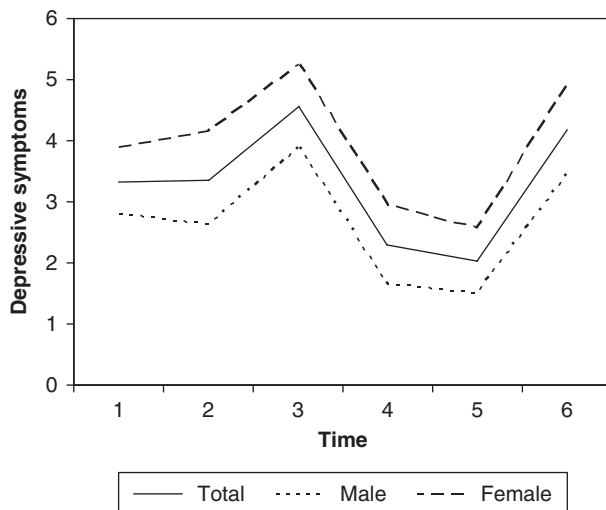


Figure 1 Average Depressive Symptoms for Taiwanese Adolescents over Six Waves

lines for males and females, the fluctuating patterns indicate that various factors may account for individual variation.

Therefore, a different analytic strategy – latent growth curves (LGC) – is employed to estimate trajectories of changes in adolescents' depressive symptoms over time. This method allows us to describe the basic pattern of an adolescent's depressive symptoms derived from the six wave panel data and to delineate possible influences from the family and the school context. Hence, the trajectory found is presumed to reveal intra-individual changes over time by estimating the intercept (the initial levels), the slope (rates of change) and the quadratic growth factor (the non-linear change). To investigate the trajectories of individual changes in a variable, three latent constructs corresponding to the initial level, slope and quadratic are defined in an SEM (structural equation model).

In the following analysis, the adolescent's depressive symptoms at different points in time (i.e. from time 1 to time 6, or dep_w1~dep_w6) are represented by three latent constructs. Each indicator is measured at different time points and these indicators are used to measure the three latent constructs in the LGC model. The model is expected to generate maximum-likelihood estimates, and missing values are treated as list-wise. An LGC model allows researchers to delineate both developmental change and stability in an attribute over time. The parameters of intra-individual changes – at the initial level, rate of change and the non-linear change – are expected to be different from person to person. Furthermore,

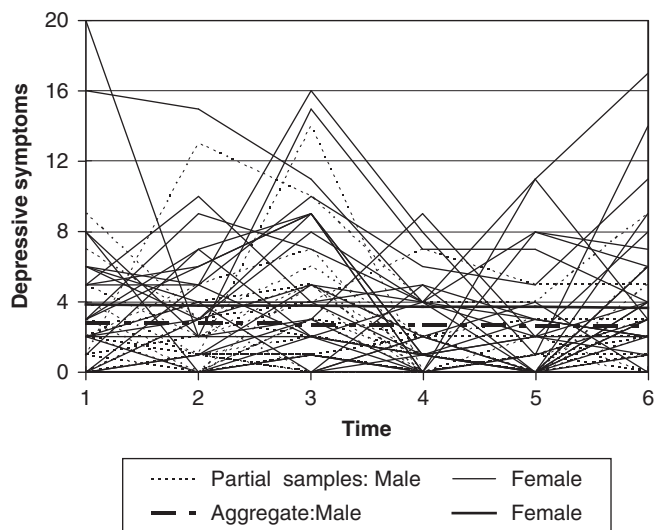


Figure 2 Trajectories of Depressive Symptoms for Random Individual Adolescents

the LGC allows researchers to examine systematic inter-individual differences in the initial level, slope and quadratic for a variable. In brief, the choice of an appropriate mathematical function to represent true individual changes is considered a crucial initial step in growth curve modelling (Wickrama et al., 1997). For our model, the negative impact from family and school contexts is hypothesized to lead to an upsurge in adolescents' depressive symptoms. The research model can be represented as Figure 3.

The Research Model

In Figure 3, the research model to study the development of the psychological well-being of Taiwanese youth is proposed. As can be seen, family and school context are considered to affect the development of depressive symptoms among adolescents. Specifically, the family cohesion perceived and the family educational strategy adopted represent the family context variables and are analysed for their potential effects across time. Class cohesion, inter-class competition and unfair treatment by teachers represent the school context variables. Their short-term and long-term effects are examined in relation to the growth trajectories of adolescents' depressive symptoms reported. In addition, two important control variables affecting individuals' mental health are a student's academic performance as well as the father's educational level. It is clear that the former often directly contributes to an adolescent's self-perception, and thus is associated with the depressive symptoms. Father's education is used to indicate

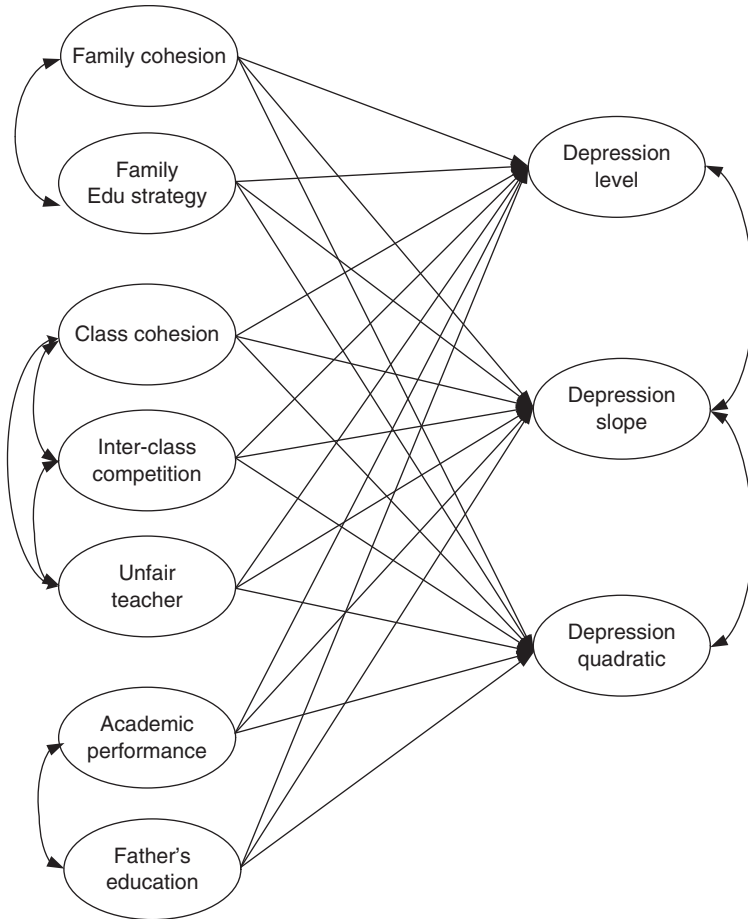


Figure 3 The Research Model

an adolescent's family background. It is assumed to represent different family expectations regarding educational performance, and consequently produces different psychological outcomes. Overall, the research model is characterized by focusing on the group-level variables as well as the important but less studied factors in the family and school context.

Results

The Psychological Well-Being of Taiwanese Youth

Table 1 indicates the overall depressive symptoms of adolescents during the six-year study period (i.e. from 7th grade through 12th grade). The

Table 1 *Descriptive Statistics of Depressive Symptoms at Different Waves*

Wave	Whole sample			Male			Female		
	N	M	SD	N	M	SD	N	M	SD
Wave 1	2668	3.32	3.91	1367	2.78	3.84	1301	3.87	3.91
Wave 2	2664	3.36	3.68	1316	2.61	3.26	1249	4.15	3.93
Wave 3	2647	4.55	4.21	1289	3.87	4.18	1215	5.23	4.19
Wave 4	2309	2.3	3.1	1109	1.65	2.64	1093	2.95	3.41
Wave 5	2005	2.02	2.77	975	1.49	2.45	946	2.56	2.99
Wave 6	1820	4.19	4.03	887	3.45	3.82	854	4.89	4.11

mean score shows that adolescents' depressive symptoms are worse in junior high school (3.32, 3.36, 4.55) than in senior high school (2.30, 2.02, 4.19). In addition, significant increases from Time 2 to Time 3 (i.e. 8th grade and 9th grade) and from Time 5 to Time 6 (i.e. 11th grade and 12th grade) can be observed. The sharpest decline from Time 3 to Time 4 takes place after graduating from junior high school and entering senior high school.

In our sample, most respondents take two highly competitive entrance examinations in order to enter high schools and universities. Therefore, it is not surprising that during the third year of both junior and senior high, when the entrance examinations approach, the average depressive symptoms have a clear increase, indicating the effect of pressure perceived by adolescents. As soon as the entrance examination is over, despite different scoring consequences, our sample reveals a general, sharp decline of depressive symptoms. The effect of educational competition is clearly supported. With regard to the higher degree of depressive symptoms in junior high school, as compared with senior high years, it may imply an outcome of biological and social maturity and may also be due to there being comparatively less competition for the college entrance examination.

Nevertheless, the accumulated differences at the mean level over six time periods cannot reflect the exact changes at the individual level (Wickrama et al., 1997). From Table 1, one can only detect the information about long-term changes at the aggregate level, with the cost of ignoring changes at the individual level. If the regression model is used to predict the depressive growth of adolescents, the result would be the two thick lines only. In order to capture different developmental trajectories of depressive symptoms, as shown in Figure 2, the LGC model is utilized to investigate individual changes of depressive symptoms over time.

The Non-Linear Change of Growth over Time

We first examine the zero-order correlations of adolescents' depressive symptoms and with other independent variables across six panel survey periods. The results in the Appendix show that the correlation coefficients

for measures of depressive symptoms are reasonably strong (ranging from .29 to .57 in six waves), indicating that the scale of depressive symptoms is a reliable measure across time. Further, the correlation coefficients among depressive symptoms and most other covariates, including family cohesion, family strategy, class cohesion, unfair treatment by teachers, are significant at the .01 level (see Appendix for detail). It suggests that there exists some kind of relationship between adolescents' depressive symptoms and family as well as school covariates, and that these relationships last throughout the middle school years.

Based on the above information, a series of analyses on LGC models are performed to reveal the 'latent trait' of the relationship between adolescents' depressive symptoms. Table 2 indicates that adolescents' depressive symptoms fit very well in an independent LGC model. The structure mean and variance of all latent variables for depressive symptoms are significant. The significant Ψ coefficients indicate that the initial status, the change rate and the non-linear change correlate with each other. This LGC model supports our contention that the growth trajectory of Taiwanese adolescents' depressive symptoms has a non-linear change rate.

Factors that Account for the Different Growth Trajectories

Figure 4 displays the interplay of influences of family and school context on adolescents' depressive symptoms. The result indicate that the data fit the research model quite well ($\chi^2 = 815.98$ with d.f. = 231, RMSEA = .05). With regard to the development of individual psychological well-being, family-related factors are found to produce a significant impact on adolescent's initial status of depressive symptoms only. Those who report better family cohesion tend to have a low depression level at the start. On the other hand, when the family educational strategy applied is greater is likely to result in a higher initial depression level for the adolescent. In other words, at the beginning stage of junior high school, an adolescent's depression level is significantly affected by family circumstances, and the caring support perceived as well as the behavioural constraints imposed are salient factors explaining the level of depressive symptoms.

With regard to the school context, two out of three selected factors are shown to contribute to an adolescent's depressive symptoms over time. The class cohesion has pronounced effects for the adolescent's initial depression level, the subsequent change of depression level (slope) and the later sharpened change of depressive symptoms (quadratic). To be specific, greater class cohesion helps to reduce individual depressive symptoms at the initial status as well as the potential non-linear change afterwards. But, on the other hand, a cohesive class also significantly increases the linear rate of change. The slope of depressive symptoms reported after the initial

Table 2 Summary for LGC model of Depressive Symptoms

	Factor loading						Latent variables			Ψ			χ^2
	T1	T2	T3	T4	T5	T6	M	Variance	Level	Slope	Quadratic	N	
Level	1	1	1	1	1	1	3.226 ***	0.100	10.450 ***			1360	23.003
Slope	0	1	2	3	4	5	-0.101	0.097	-4.334 ***	3.949 ***			
Quadratic	0	1	4	9	16	25	-0.055 *	0.022	0.617 ***	-0.623 ***	0.09 **		

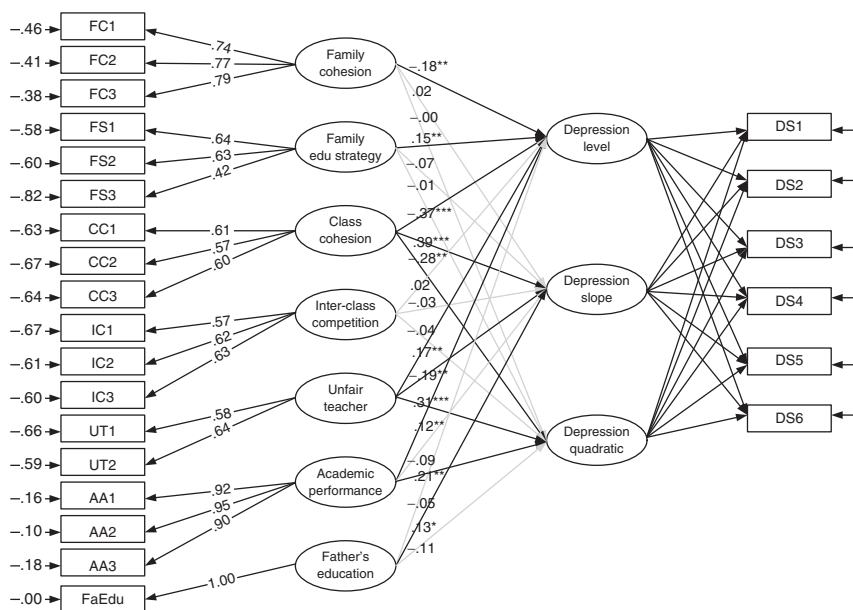


Figure 4 Factors Accounting for the Growth Trajectory of Depressive Symptoms: Family and School Context in Taiwan
 Notes: $\chi^2 = 815.98$; d.f. = 231; $p = .00$; RMSEA = .050; GFI = .94; CN = 360.76.

status may reflect the educational stress perceived by adolescents who are situated in a more cohesive class, and, in turn, are unavoidably involved in the competition among peers as the examination approaches.

Unexpectedly, inter-class competition does not have significant effects over the junior and senior high school years. Although inter-class competition is regarded a deliberate strategy of educational competition, the finding suggests that intra-class culture takes precedence over inter-class culture for adolescents in terms of the development of psychological well-being. This may be another expression of the subjective feeling towards classmates who are significant others to adolescents in everyday life.

Perhaps the most interesting finding is with regard to the unfair treatment by the designated class teacher in junior high school. It is found that the perception of more unfair treatment has a significant effect, increasing the adolescent's level of depressive symptoms in the initial status as well as at the later stage of non-linear change. However, having such a teacher in the class tends to reduce the linear rate of change or the depression slope. This may be due to the acute pressure from the imminent high school entrance examination at the end of the third year. Alternatively, other matters including the teacher's behaviour may appear to be less important and the student may

have got used to it or can better accommodate it. Over all, the salient school effect on an adolescent's psychological state is confirmed, and intra-class cohesion as well as treatment by the teacher is shown to account for the growth trajectory over time.

As to the control factor, better academic performance produces a higher level of depressive symptoms at the initial status as well as at the later stage of non-linear change. Since better academic grades are often accompanied by higher achievement motivation and expectations, academically better students in Taiwan actually have greater anxiety and, thus, may experience more depressive symptoms. As for father's educational level, it significantly affects the linear rate of change, and having a more highly educated father enhances the depression slope. This implies that adolescents from higher SES families may be under greater pressure to perform better so as to enter desirable high schools. Therefore, the family's educational expectations are revealed in the linear upsurge of depressive symptoms reported.

In brief, Figure 4 supports our research model. Different effects from the family and the school context in terms of an adolescent's development of depressive symptoms are found. Specifically, family influences the initial status of depression level, and school accounts for the growth trajectory over the six-year period.

Gender Comparisons

An evident pattern manifested in the average depressive symptoms across time is the significant gender differences displayed in Figure 1. As a consequence, it would be relevant to investigate whether factors explaining the growth trajectory of adolescent's psychological well-being have different gender effects. In other words, since females tend to reveal higher depressive symptoms, the family and school context variables analysed may produce different growth curves by gender. We now turn to this question.

A closer scrutiny of the model comparison in Table 3 reveals that family educational strategy has significantly different effects on males and females. Females who report stronger parental constraints or greater parental monitoring are more likely to have a higher level of depressive symptoms in the initial level as well as greater non-linear change afterwards ($\gamma_{12} = .35, p < .05$; $\gamma_{32} = .20, p < .05$). Family cohesion also has stronger effects on females in that higher perceived cohesion is likely to result in fewer non-linear changes of depressive symptoms for females ($\gamma_{31} = -.31, p < .05$). For males, the influences of family contextual variables are not significant. With regard to the school context, only unfair treatment by the teacher attains significance on gender comparison. Females again are significantly affected by the teacher's behaviour and are more likely to result in a higher level of depressive symptoms ($\gamma_{15} = .57, p < .05$). In other words, the familial context as well as the school context are shown to

Table 3 Significant Gender Comparisons of Adolescent Depressive Symptoms

	Model	Description	Male	Female	χ^2	d.f.	$\Delta\chi^2$	<i>p</i>
γ_{12}	Alternative	Male≠Female	0.15	0.35	1660.81	557	8.77	< .05
Family strategy-->level	Baseline	Male=Female	0.24		1669.58	558		
γ_{15}	Alternative	Male≠Female	0.39	0.57	1663.34	557	6.24	< .05
Unfair teacher -->level	Baseline	Male=Female	0.5		1669.58	558		
γ_{31}	Alternative	Male≠Female	0.15	-0.31	1665.47	557	4.11	< .05
Family cohesion-->Quadratic	Baseline	Male=Female	-0.08		1669.58	558		
γ_{32}	Alternative	Male≠Female	-0.13	0.2	1664.86	557	4.72	< .05
Family strategy--> Quadratic	Baseline	Male=Female	-0.04		1669.58	558		

produce pronounced effects on the depressive symptoms for female adolescents, but not for male adolescents.

Results from the gender comparison have several important implications. Family cohesion and family educational strategy, due to their inherent nature, lead to expected opposing effects on females' psychological well-being. Being surrounded by supportive family members significantly reduces females' depression in terms of quadratic non-linear change. But the attempt to use strict rules by parents to help children concentrate on studying turns out to have a negative influence on female adolescents' depression level as well as on the non-linear change afterwards. Likewise, if a teacher is perceived to apply unfair treatment, female students are perhaps more sensitive than males and are thus more likely to react negatively, as shown by the higher level of depressive symptoms. Overall, findings regarding gender differences indicate family and school context produce salient effects on females' psychological well-being.

Conclusion

This study examines the growth trajectory of psychological well-being among Taiwanese adolescents over a period of six years, using data from the Taiwan Youth Project, a panel study sampling first year junior high students in northern Taiwan since the year 2000. Depressive symptoms are used as the indicator to reflect various degrees of the individual's psychological state. The time frame is set to follow subjects from early adolescence (average age 13) to later adolescence (average age 18). It is assumed that among the different contextual effects involved, family and school context are major factors affecting the developmental outcome of Taiwanese youth. Since significant gender differences of depressive symptoms for youth have been documented, possible gender variation is also explored.

Unlike previous reports on depressive symptoms, where most attention is on the effect of individual psychological variables, our analysis makes a special effort to investigate the relationship and structural factors, especially those at the group level. For the family context, two indicators are included: family cohesion, which taps the general family cultural aspect, and family educational strategy, which reflects important family practices for adolescents taking the entrance examination; our LGC analysis is limited to the behavioural aspect only. Likewise, class cohesion, inter-class competition as well as unfair treatment by teachers are all important class culture or normative practices embedded in the typical Taiwanese junior high school. These three factors are used to indicate the school context.

First of all, the analysis confirms there is a non-linear developmental pattern of individual depressive symptoms. The result leads us to delineate the relative effects of family vs school context. Using the LGC method, we

are able to show that family- and school-related factors not only explain various growth trajectories of adolescents' depressive symptoms, they also produce different effects over time. Specifically, the results indicate that when examining the growth curve of depressive symptoms, family context is salient at the initial status, but it does not affect the subsequent development. On the other hand, class cohesion and teacher's treatment are significant in explaining the initial level, the intercept, as well as the non-linear change of depressive symptoms. In other words, family context serves as the precondition to determine the relative level of individual depressive symptoms in the beginning year. The preconditional factors then give way to school context as adolescents get used to the school environment.

In our study, school is indeed a significant context accounting for the growth trajectories of adolescents' depressive symptoms. However, among school factors examined, the unexpected insignificance of inter-class competition relative to the salient effects from class cohesion indicates that intra-class relations are much more important than inter-class effects. Teacher's differential treatment of students with better academic performance also produces significant effects throughout the whole period examined. These pronounced effects support our contention that educational competition in Taiwan does affect the psychological well-being of adolescents. Furthermore, specific findings with regard to the school context indicate that the entrance examination to senior high school imposes great pressure on students, such that as the examination date approaches, even a cohesive class becomes a source of depression. Similarly, for students who are about to take entrance examinations, unfair treatment by the teacher actually decreases or does not increase the rate of change. This result may be due to the constant pressure of preparing for the test as well as the possibility of getting used to teachers' behaviour. In other words, for a typical Taiwanese adolescent, educational competition is the first priority. As they become more familiar with the school context, supportive classmates turn out to represent peer pressure, and thus increase the linear change of depressive symptoms. At the same time, whether one's teacher has been fair or not, although contributing to the initial status and the non-linear change of depressive symptoms, is shown to result in negative effects on the linear rate of change. The possible explanation of this pronounced effect may be attributed to the overwhelming competition that characterizes the educational system in Taiwan.

In Taiwan, junior high students stay in the same class for three years. Since the development of the adolescent's psychological well-being manifests clear gender differences at the aggregate level, it is suspected that the competitive educational environment may produce differing effects between genders. Further analysis of gender comparison verifies our speculation. Findings regarding family contextual variables show salient gender differences in the growth curve of individual depressive symptoms.

Female adolescents, who are more likely to be affected by family relations and family practices, react with a significantly higher level of depressive symptoms. The unfair treatment by teachers also has a stronger negative influence on females at the beginning stage. This suggests that females may be more sensitive and thus have a higher depressive level if situated in a tightly monitored family context or if facing differential treatment on the part of teachers. Males, on the other hand, appear to be less bothered by the above contextual factors.

Academic performance and father's educational level are shown to have the expected influence on the development of adolescents' psychological well-being. An academically better student in Taiwan is more likely to feel more anxiety about educational competition. Family's SES as indicated by father's education also contributes to the higher expectation of educational performance, especially pertaining to the high school entrance examination. Again, the vivid effect of the competitive educational environment in Taiwan on adolescents' psychological outcome is verified.

Perhaps the most noteworthy finding regarding the school context is the important role of the designated teacher for the class. Unfair treatment on the part of teachers, in favouring students with a good academic performance, is closely related to the growth of adolescents' depressive symptoms during the period studied. Reports of unfair treatment account for the initial level, the intercept of depressive symptoms, as well as the non-linear fluctuation of the depressive symptom curve for adolescents. The long-term effect that lasts from junior high to senior high years implies that adolescents who perceive of teachers as engaging in unfair treatment are more likely to remain at the higher depressive level. The estimated quadratic change being positive suggests a lower likelihood of experiencing an improvement in the non-linear growth curve. Results of the gender comparison indicate that a teacher's unfair treatment during junior high years is particularly salient in terms of affecting the depressive status for female adolescents.

To sum up, this study ascertains the importance of family and school context in the development of adolescents' depressive symptoms. The growth curve from junior high to senior high years demonstrates that while family context sets the initial status of depression, the school context may be more salient over time. In addition, different gender effects as well as the key role the designated class teacher performs in the individual development of depressive symptoms suggest the strong influence of school-related factors. Since the school class one belongs to is an important influence for adolescents' experience of the changing status of depression, future studies in the East Asian region need to consider this structural arrangement in order to delineate potential school mechanisms affecting adolescents' psychological well-being.

Appendix: Correlation Matrix (N = 1027)

Time	Time1	Time2	Time3	Time4	Time5	Time6	Time1	Time2	Time3	Time1	Time2	Time3	Time1	Time2	Time3	
Var. name	DS1	DS2	DS3	DS4	DS5	DS6	FC1	FC2	FC3	FS1	FS2	FS3	FC1	FC2	FC3	
Depressive symptom (DS1)	1.000															
Depressive symptom (DS2)	.497***	1.000														
Depressive symptom (DS3)	.459***	.571***	1.000													
Depressive symptom (DS4)	.296***	.417***	.445***	1.000												
Depressive symptom (DS5)	.292***	.362***	.415***	.416***	1.000											
Depressive symptom (DS6)	.320***	.435***	.423***	.419***	.432***	1.000										
Family cohesion (FC1)	-.230***	-.154***	-.095**	-.104***	-.138***	-.140***	1.000									
Family cohesion (FC2)	-.219***	-.192***	-.177***	-.152***	-.192***	-.139***	.576***	1.000								
Family cohesion (FC3)	-.200***	-.138***	-.151***	-.143***	-.155***	-.133***	.512***	.648***	1.000							
Family strategy (FS1)	.097**	.032	.048	-.005	.051	.018	.030	-.043	-.058	1.000						
Family strategy (FS2)	.092**	.136***	.123***	.063*	.121***	.105***	.050	-.009	-.045	.486***	1.000					
Family strategy (FS3)	.016	.017	.001	.032	.051	-.016	.040	.006	.011	.139***	.148***	1.000				

(Continued)

Appendix: (Continued)

Time	Time1	Time2	Time3	Time4	Time5	Time6	Time1	Time2	Time3	Time1	Time2	Time3	Time1	Time2	Time3	Time1	Time2	Time3
Var. name	DS1	DS2	DS3	DS4	DS5	DS6	FC1	FC2	FC3	FS1	FS2	FS3	FS1	FS2	FS3	FS1	FS2	FS3
Class cohesion (CC1)	-.273***	-.132***	-.135***	-.133***	-.092**	-.126***	.270***	.194***	.193***	-.008	-.027	.004	-.008	-.027	.004	-.008	-.027	.004
Class cohesion (CC2)	-.212***	-.202***	-.152***	-.122***	-.112***	-.105***	.181***	.240***	.154***	-.152***	-.222***	.006	-.152***	-.222***	.006	-.152***	-.222***	.006
Class cohesion (CC3)	-.155***	-.190***	-.213***	-.145***	-.133***	-.112***	.122***	.125***	.173***	.042	.029	.046	.042	.029	.046	.042	.029	.046
Inter-class competition (IC1)	-.051	-.060	-.010	-.006	-.013	-.048	.074*	.070*	.056	.003	-.029	-.022	.003	-.029	-.022	.003	-.029	-.022
Inter-class competition (IC2)	-.028	-.071*	-.057	-.029	-.048	-.076*	.063*	.090**	.046	.039	.012	-.036	.039	.012	-.036	.039	.012	-.036
Inter-class competition (IC3)	-.065*	-.065*	-.015	-.015	-.034	-.035	.067*	.058	.057	.005	-.013	.002	.005	-.013	.002	.005	-.013	.002
Unfair teacher (UT1)	.145***	.080*	.097**	.063*	.035	.093**	-.049	-.101**	-.073*	.043	.020	.015	.043	.020	.015	.043	.020	.015
Unfair teacher (UT2)	.093**	.129***	.130***	.105***	.074*	.102**	-.024	-.099**	-.066*	-.014	.056	-.006	-.014	.056	-.006	-.014	.056	-.006
Academic achievement (AA1)	.041	.057	.073*	.026	.024	.086**	.094**	.087**	.038	-.082**	.004	-.038	-.082**	.004	-.038	-.082**	.004	-.038
Academic achievement (AA2)	.061*	.052	.087**	.040	.053*	.098**	.070*	.075*	.036	-.087**	-.020	-.028	-.087**	-.020	-.028	-.087**	-.020	-.028
Academic achievement (AA3)	.059	.061	.098**	.046	.035	.107***	.079*	.089**	.053	-.066*	-.028	-.038	-.066*	-.028	-.038	-.066*	-.028	-.038
Father's education (FaEdu)	.026	.000	-.014	.044	.069*	.041	.100**	.083**	.037	.132***	.125***	.071*	.132***	.125***	.071*	.132***	.125***	.071*

Appendix: (Continued)

Time	Time1	Time2	Time3	Time4	Time5	Time6	Time1	Time2	Time1	Time2	Time1	Time2	Time3	Time1
Var. name	CC1	CC2	CC3	IC1	IC2	IC3	UT1	UT2	AA1	AA2	AA3	FaEdu		
Depressive symptom (DS1)														
Depressive symptom (DS2)														
Depressive symptom (DS3)														
Depressive symptom (DS4)														
Depressive symptom (DS5)														
Depressive symptom (DS6)														
Family cohesion (FC1)														
Family cohesion (FC2)														
Family cohesion (FC3)														
Family strategy (FS1)														
Family strategy (FS2)														
Family strategy (FS3)														

(Continued)

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Biographical Note: Chin-Chun Yi is a research fellow at the Institute of Sociology, Academia Sinica, Taiwan. Her research interests include marital power and marital relations, intergenerational relations and youth development. Dr Yi has engaged in studies of females' changing domestic status in four Chinese societies (1994–2003), the family survey in East Asian societies (2006), the intergenerational value transmissions for children (2004–7) and the Taiwan Youth Project (2000–7). Dr Yi's publications can be found at: www.ios.sinica.edu.tw/ios/index.php?pid=23&id=105
Address: Institute of Sociology, Academia Sinica, 128, Sec. 2 Academia Rd, Taipei 115, Taiwan. [email: chinyi@gate.sinica.edu.tw]

Biographical Note: Chyi-In Wu is an associate research fellow at the Institute of Sociology, Academia Sinica, Taiwan. His research interests include life course studies, adolescent mental health and healthy behaviours, adolescent friendship networks and social informatics.
Address: Institute of Sociology, Academia Sinica, 128, Sec. 2 Academia Rd, Taipei 115, Taiwan. [email: sss1ciw@gate.sinica.edu.tw]

Biographical Note: Ying-Hwa Chang is director of the Centre for Humanities and Social Sciences, Academia Sinica and a research fellow at the Institute of Sociology. His research interests are in urban and family studies. Dr Chang has been actively involved in several large survey projects in Taiwan.
Address: Institute of Sociology, Academia Sinica, 128, Sec. 2 Academia Rd, Taipei 115, Taiwan. [email: ethwa@gate.sinica.edu.tw]

Biographical Note: Ming-Yi Chang is a postdoctoral fellow at National Taiwan University. Her research interests include social network analysis, mental health, adolescent development and general educational subjects.
Address: Department of Bio-Industry Communication and Development, National Taiwan University, Taipei, Taiwan. [email: mini0832@msn.com]