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Longitudinal Linkages among Parent-Child Acculturation Discrepancy, Parenting, Parent-Child Sense of Alienation, and Adolescent Adjustment in Chinese Immigrant Families

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Abstract

Parent-child acculturation discrepancy is a risk factor in the development of children in immigrant families. Using a longitudinal sample of Chinese immigrant families, the current study examined how unsupportive parenting and parent-child sense of alienation sequentially mediate the relationship between parent-child acculturation discrepancy and child adjustment during early and middle adolescence. Acculturation discrepancy scores were created using multilevel modeling to take into account the interdependence among family members. Structural equation models showed that, during early adolescence, parent-child American orientation discrepancy is related to parents' use of unsupportive parenting practices; parents' use of unsupportive parenting is related to increased sense of alienation between parents and children, which in turn is related to more depressive symptoms and lower academic performance in Chinese American adolescents. These patterns of negative adjustment established in early adolescence persist into middle adolescence. This mediating effect is more apparent among father-adolescent dyads than among mother-adolescent dyads. In contrast, parent-child Chinese orientation discrepancy does not demonstrate a significant direct or indirect effect on adolescent adjustment, either concurrently or longitudinally. The current findings suggest that early adolescence is more susceptible to the negative effects of parent-child acculturation discrepancy; they also underscore the importance of fathering in Chinese immigrant families.

Keywords

acculturation gap; parenting; Chinese; adolescence; depressive symptoms; academic achievement

Rapid growth in the already sizeable population of children of immigrants in the United States has prompted research on the adjustment of these children (Hernandez, 2004). However, few studies have examined long-term adjustment, especially among children from

Asian immigrant families (Suarez-Orozco, 2001). The present investigation seeks to fill this gap by using a longitudinal design to examine multiple indicators of adjustment among children of Chinese immigrants, including depressive symptoms and academic performance (as measured by school grades and standardized test scores). Chinese immigrant families are the focus of this study because they represent the largest Asian ethnic group in the U.S. (Grieco & Trevelyan, 2010).

For immigrant families, acculturation represents an important first step towards adjustment to the new host country, one that involves adapting to the language, attitudes and values of the mainstream culture while maintaining the language, attitudes and values of their heritage culture (Berry, 1997). Discrepancy in acculturation levels between parents and children has been considered a risk factor for poor academic motivation and depressive symptoms (Costigan & Dokis, 2006), all of which are indicators of child maladjustment. This risk is hypothesized to be exacerbated for families with few economic and educational resources (Portes & Rumbaut, 1996). Using a longitudinal sample, the current study examines how unsupportive parenting practices and a sense of alienation between parents and children mediate sequentially the relation between parent-child acculturation discrepancy and child maladjustment during early and middle adolescence. Although previous studies have used difference scores or interaction terms to operationalize parent-child acculturation discrepancy (Birman, 2006b), the current study recognizes both within- and between-level variation in acculturation levels among family members and employs multilevel modeling to create parent-child acculturation discrepancy scores.

Acculturation Discrepancy and Child Maladjustment

Researchers who study the acculturation of immigrant families generally recognize that family members may be discrepant in their American and heritage cultural orientations. Compared to their parents, children of immigrants are more likely to adopt the cultural values and practices of the American culture (Rumbaut, 2005). For their part, immigrant parents are more likely than their children to be oriented to their heritage culture.

Portes and Rumbaut (1996) proposed that a large discrepancy between parents' and children's acculturation levels may put immigrant children at increased risk for unfavorable developmental outcomes. Family functioning may be disrupted due to high levels of parent-child acculturation discrepancy, resulting in increased family conflict (Farver, Narang, & Bhadha, 2002) and parents' use of unsupportive parenting practices (Kim, Chen, Li, Huang, & Moon, 2009), as well as increased sense of alienation in the parent-child dyad (Qin, 2006), all of which may in turn relate to lower academic performance and socio-emotional problems in children. Empirical studies demonstrate that parent-child discrepancy in Chinese orientation was associated with more depressive feelings and lower achievement motivation among Chinese Canadian children (Costigan & Dokis, 2006). However, minimal attention has been paid to standardized test scores as an additional indicator of child academic performance. The current study focuses on multiple indicators of adolescent adjustment, including depressive symptoms, grade point average (GPA), and standardized test scores of Chinese American children in both early and middle adolescence.

A limitation of the studies reviewed above is that they investigate only concurrent relationships between acculturation discrepancy and adolescent outcomes. Thus, alternative causal relationships cannot be ruled out. For example, disrupted family functions are likely to increase parent-child acculturation discrepancy (Costigan, 2010), and adolescent adjustment is likely to influence family processes (Hughes & Gullone, 2010). By using a two-wave longitudinal design, the current study is able to take into account the temporal ordering of variables to test a mediation effect that may operate over time. Another

advantage of using a longitudinal design is that the study results can provide insight into how to time intervention programs. Because parent-child relationships undergo distinct changes between early and middle adolescence (e.g., conflicts become less frequent from early to middle adolescence) (Laursen, Coy, & Collins, 1998; Smetana, Campione-Barr, & Metzger, 2006), acculturation discrepancy may not be equally salient for child adjustment during both time periods. The current study attempts to examine early adolescence and middle adolescence as potential intervention points to determine if one, both or neither represents an opportune intervention point. With this information, interventions can be timed so that they occur when they will be comparatively more effective in improving the mental health and academic adjustment of children of Chinese immigrants.

Acculturation Discrepancy, Parenting, and Child Maladjustment

In studies examining underlying mechanisms in the relationship between acculturation discrepancy and child maladjustment, family conflict is commonly examined as a mediator (Telzer, 2010). However, it may also be important to consider factors such as parenting and parent-child relationships, as they have been demonstrated to be more modifiable and thus amenable to interventions (Formoso, Gonzales, & Aiken, 2000).

The extant literature on parenting in Chinese American families focuses on culturally bound concepts (e.g. “*guan*”) and characterizes Chinese American parenting as more controlling and restrictive than the parenting observed in European American families (Chao, 1994). Despite these mean-level differences, Chinese American adolescents do benefit from parenting practices considered optimal for European American adolescents, such as warmth, acceptance, and firm control. Indeed, parental warmth, parental monitoring, and inductive reasoning are negatively associated with depressive symptoms among Chinese American adolescents (Greenberger, Chen, Tally, & Dong, 2000; Kim & Ge, 2000). In addition, warm, involved, and democratic parenting has been shown to be positively related to Chinese American children’s academic performance (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Therefore, the current study examines supportive parenting, which emphasizes parental warmth, inductive reasoning, and parental monitoring (Weaver & Kim, 2008), as a potential mediator in the relationship between parent-child acculturation discrepancy and adolescent maladjustment.

We propose that parent-child acculturation discrepancy serves as a parenting stressor that compromises parents’ ability to carry out supportive parenting practices. For example, parents may feel that, due to their lack of experience with American culture, they are less effective in guiding their children’s interactions in the larger society, and they may be less likely to use supportive parenting practices as a result (Costigan & Koryzma, 2011). Indeed, Chinese American parents reported more uncertainty and difficulties in monitoring, socializing, and communicating with their children due to language barriers and a lack of knowledge about American customs (Qin, 2006). Parents also reported more frustration with their children’s behavior when they perceived a large acculturation discrepancy between themselves and their children (Buki, Ma, Strom, & Strom, 2003). Therefore, we hypothesize that when there is a discrepancy between parents’ and children’s acculturation levels, parents are likely to be less warm towards their children, less active in monitoring their children, and less motivated to use inductive reasoning when disciplining their children. Unsupportive parenting may separate discrepant parents and adolescents further, leading to adolescent maladjustment in Chinese immigrant families.

Parenting, Sense of Alienation in Parent-Child Relationships, and Child Maladjustment

The current study proposes that parents' use of unsupportive parenting exerts its effect on adolescent maladjustment by fostering a sense of alienation between adolescents and parents. Chao (2001) hypothesized that warm, accepting, but firmly controlled parenting engenders a close parent-child relationship. Conversely, the use of unsupportive parenting may foreshadow deterioration in the parent-child relationship, which then results in an increased sense of alienation between parents and children. Studies on adolescents' attachment to their parents have demonstrated that a failure to provide warm and firm parenting is associated with distant and avoidant parent-child relationships (Bosmans, Braet, Leeuwen, & Beyers, 2006; Karavasilis, Doyle, & Markiewicz, 2003). Using multiple samples of Chinese American families, Ying (1999, 2009) reported that reducing unsupportive parenting behaviors resulted in an improvement in parent-child relationships, as perceived by both parents and children.

Having a sense of connection with parents is critical during adolescence, as it helps children balance autonomy and relatedness in other close relationships (Allen & Land, 1999). A lack of parent-child bonding is associated with more depressive symptoms and poorer academic performance (Allen, Porter, McFarland, McElhaney, & Marsh, 2007; Jacobsen & Hofmann, 1997). A sense of alienation between parents and children may be especially detrimental in immigrant families. Since adolescents from immigrant families are confronted with the additional challenge of navigating between two different cultures (Costigan, 2010), a strong sense of alienation between parents and children may be related to adolescents' greater susceptibility to depressive symptoms. In addition, because parents play an important role in Chinese American adolescents' academic success (Chao, 1996), a sense of alienation in the parent-child relationship may have deleterious effects on academic performance. Therefore, the current study examines whether parents' use of unsupportive parenting precipitates a sense of alienation between parents and adolescents, which may affect the relationship between parent-child acculturation discrepancy and adolescent adjustment.

Parent Gender

The family processes mentioned above may not be precisely the same for father-adolescent and mother-adolescent dyads. According to the current literature, fathering and mothering play different roles in child development: whereas mothers attend to caretaking and children's relational needs, fathers assume the role of connecting the child with the outside world (Paquette, 2004). Empirical studies examining both fathering and mothering suggest that mothering relates more closely with children's self-concept and interpersonal behaviors (Day & Padilla-Walker, 2009; Verschueren & Marcoen, 1999), whereas fathering relates more closely with indicators of child adjustment, such as internalizing and externalizing problems (Day & Padilla-Walker, 2009; Parke et al., 2004). The current study separately examines father-adolescent and mother-adolescent dyads, in order to determine whether both parents are similarly implicated in the link between parent-child acculturation discrepancy and child adjustment.

Parental Socioeconomic Status and Adolescent Sex as Moderators

Portes and Rumbaut (1996) suggested that the link between parent-child acculturation discrepancy and developmental problems in children may be stronger in families with fewer economic and educational resources. The current study examines the moderating role of family income and parents' educational level to test whether the proposed associations among study constructs have more deleterious effects in economically disadvantaged

households. As studies have demonstrated that adolescent girls are more prone to depressive symptoms (Ge, Lorenz, Conger, Elder, & Simons, 1994), but are more likely than boys to perform well academically (Pomerantz, Altermatt, & Saxon, 2002), the current study also tests whether the proposed relationships may be stronger for girls than for boys.

Present Study

The present study is part of a longitudinal project on Chinese immigrant families. Data were first collected when the target child was in his or her early adolescent years (middle school) and again when the target child was in middle adolescence (high school).

The conceptual model to be tested is depicted in Figure 1. Both concurrent and longitudinal paths between model constructs are tested. Concurrent relationships from parent-child acculturation discrepancies to parenting to sense of alienation to adolescent outcomes are tested among all Wave 1 variables as well as among all Wave 2 variables (a paths in Figure 1; e.g. acculturation discrepancy W1 → parenting W1). Longitudinal relationships between model constructs are tested across Wave 1 and 2 constructs (b paths and c paths in Figure 1). Autoregressive influences are examined through paths of the same constructs across waves (b paths in Figure 1; e.g., parenting W1 → parenting W2). In addition, cross-lagged paths are specified for distinct constructs from Wave 1 to Wave 2 (c paths in Figure 1; e.g., acculturation discrepancy W1 → parenting W2). Alternative cross-lagged paths are also specified from Wave 1 to Wave 2 (d paths in Figure 1; e.g. parenting W1 → acculturation discrepancy W2) to test the potential alternative causal direction of the relationships.

There are three goals in the current study. First, parent-child acculturation discrepancy scores are estimated using multilevel modeling. Second, both concurrent and longitudinal relations among (a) parent-child acculturation, (b) unsupportive parenting, (c) sense of alienation and (d) adolescents' adjustment (depressive symptoms, GPA, and standardized scores) are examined. At the same time, the potential mediating roles of unsupportive parenting (as reported by parents) and sense of alienation in parent-child dyads on the relationship between parent-child acculturation discrepancy and adolescents' adjustment are tested both concurrently and longitudinally. The proposed relationships are tested separately for fathers and mothers. Third, adolescent sex and parental socio-economic status are examined as possible moderators.

Methods

Participants

From a larger study of 444 Chinese American families, the current study selected 379 families in which both parents are foreign-born. Adolescents in the study are either U.S.-born (72.0%) or foreign-born (28.0%). Adolescents were initially recruited from seven middle schools in Northern California at Wave 1, with a Wave 2 follow-up occurring four years later, when adolescents were in high school. Slightly over half of the adolescent sample is female ($n = 206$, 54.4%). The adolescents were in seventh or eighth grade at Wave 1 and eleventh or twelfth grade at Wave 2. The age of the adolescents ranged from 12 to 15 at Wave 1 ($M = 13.04$, $SD = 0.73$ at Wave 1; $M = 17.04$, $SD = 0.74$ at Wave 2). Median family income was in the range of \$30,001 to \$45,000 at both waves. Only 29.8% of fathers and 25.2% of mothers had more than high school education. Most of the participants hailed from Hong Kong or southern provinces of China. Immigrant parents represented a wide range of occupations, from professionals (e.g., banker or computer programmer) to unskilled laborers (e.g. construction worker or janitor). The majority speaks Cantonese; less than 10% of the families speak Mandarin as their home language.

Procedure

Participants were recruited from seven middle schools in major metropolitan areas of Northern California. With the aid of school administrators, Chinese American students were identified, and all eligible families (those who self-identified as Chinese) were sent a letter describing the research project. Participants received a packet of questionnaires (in English and Chinese) for the mother, father, and target adolescent in the household. Participants were instructed to complete the questionnaires alone and not to discuss answers with friends and/or family members. They were also instructed to seal their questionnaires in the provided envelopes immediately following completion of their responses. Within approximately 2–3 weeks after sending the questionnaire packet, research assistants visited each school to collect the completed questionnaires during the students' lunch periods. Target adolescents who returned family questionnaires were compensated a nominal amount (\$30 at Wave 1 and \$50 at Wave 2) for their participation. Of the 47% of families who agreed to participate, 76% returned surveys. Four years later, approximately 79% of Wave 1 participating families completed questionnaires at Wave 2. About 70% of parents used the Chinese language version of the questionnaire, and the majority (84% at W1 and 94% at W2) of adolescents used the English version.

Attrition analyses comparing families who participated in both data collection waves with those who dropped out at Wave 2 revealed no significant differences between groups on key demographic variables (i.e., parental education, family income, parent and child nativity, child or parent age, parent marital status) with one exception: boys were more likely to have dropped out than girls ($\chi^2(1) = 12.39, p < .001$). In light of the differential attrition rate, the structural equation models to follow are analyzed separately for boys and girls through multi-group analyses.

Measures

Acculturation—The Vancouver Index of Acculturation was developed for use with Chinese Americans (Ryder, Alden, & Paulhus, 2000). Using a scale ranging from (1) “strongly disagree” to (5) “strongly agree,” the mother, father, and adolescent in each family responded to 10 questions about their American orientation and 10 questions about their Chinese orientation. An example item is, “I often follow Chinese cultural traditions.” The American orientation items are the same as the Chinese orientation items, except that the word “Chinese” is changed to “American.” An average of the items was used, and the acculturation scale score was computed separately for American and Chinese orientations for each informant in the study. The internal consistency for either subscale was high across waves and informants ($\alpha = .78$ to $.88$).

Parenting—Parenting was assessed through measures adapted from the Iowa Youth and Families Project (Ge, Best, Conger, & Simons, 1996). Fathers and mothers rated eight items for parental warmth (e.g., being understanding; $\alpha = .88$ to $.93$ across waves and informants), using a scale ranging from (1) “never” to (7) “always.” They also rated four items for inductive reasoning (e.g., give reasons for decisions; $\alpha = .73$ to $.83$ across waves and informants) and three items for monitoring (e.g., know whereabouts of adolescent; $\alpha = .66$ to $.79$ across waves and informants), using a scale ranging from (1) “never” to (5) “always.” Data from Waves 1 and 2 were nested to estimate a common factor structure across waves. A measurement model was then fitted to estimate a latent construct of supportive parenting practices, indicated by parental warmth, inductive reasoning and monitoring, separately for father-adolescent dyads ($\lambda = .66$ to $.89, p < .001$) and mother-adolescent dyads ($\lambda = .61$ to $.78, p < .001$). Estimating the measurement model yielded a distinct factor score of supportive parenting for father-adolescent and mother-adolescent dyads at each wave, and these scores were used in the following analyses.

Sense of alienation in parent-child relationship—Sense of alienation was assessed through the alienation subscale of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). Adolescents, fathers, and mothers each rated eight items on adolescents' alienation from parents (e.g., do not get much attention at home; $\alpha = .76$ to $.87$ across waves and informants) using a scale ranging from (1) “strongly disagree” to (5) “strongly agree.” Data from Waves 1 and 2 were nested to estimate a common factor structure across waves. The measurement model was then fitted to estimate a latent construct of alienation from parent and child reports, separately for father-adolescent ($\lambda = .23$ to $.76$, $p < .001$) and mother-adolescent dyads ($\lambda = .20$ to $.88$, $p < .001$). To maintain the construct validity of the original alienation subscale, we elected to use all items rather than drop those with lower factor loadings, especially given that all factor loadings were still significant at the $p < .001$ level. Estimating the measurement model yielded a distinct factor score of alienation for father-adolescent and mother-adolescent dyads at each wave, and these scores were used in the following analyses.

Adolescent depressive symptoms—Adolescents completed the widely used Center for Epidemiologic Studies of Depression Scale (CES-D) (Radloff, 1977), a reliable scale for use with diverse samples (Radloff, 1991). Using a scale ranging from (0) “rarely or none of the time” to (3) “most or all of the time,” adolescents answered 20 questions about their depressed mood ($\alpha = .74$ to $.78$ across waves). As recommended by Radloff (1991), the composite CES-D score was calculated only for adolescents who had no more than five missing items on the scale, with only one adolescent not meeting this criterion at W1 and two not meeting this criterion at W2. There was sufficient variability in the CES-D measure, with scores ranging from 0 to 53 across waves.

Adolescents' academic performance—Three indicators of students' academic performance were obtained from school records: unweighted Grade Point Average (GPA, without physical education courses), and California Standards Test (CST) scores in Math and English. At Waves 1 and 2, respectively, the average GPA was 3.43 ($SD = .61$) and 3.09 ($SD = .67$); the average CST score in Math was 378.80 ($SD = 60.36$) and 362.69 ($SD = 66.70$); the average CST score in English was 347.88 ($SD = 46.55$) and 368.51 ($SD = 46.53$). Data from Wave 1 and 2 were nested to estimate a common factor structure across waves. A measurement model was then fitted to estimate a latent construct of academic performance from GPA and CST scores in Math and English ($\lambda = .59$ to $.78$, $p < .001$). Estimating the measurement model yielded a distinct factor score of academic performance at each wave, and these scores were used in the following analyses. Because the CST scores at Wave 2 were obtained one year earlier than the Wave 2 data collection, path α_6 (alienation W2 $\rightarrow$ adolescent outcomes W2) in our conceptual model is not estimated for academic performance as the outcome variable.

Socioeconomic status—At both waves, fathers and mothers answered questions on their highest level of education attained and family income before taxes. The highest level of education attained was assessed using a scale ranging from (1) “no formal schooling” to (9) “finished graduate degree (medical, law, Master's degree, etc.).” Family income was assessed in \$15,000 increments using a scale ranging from (1) “below \$15,000” to (12) “\$165,001 or more.”

Control variables—At both waves, adolescents answered questions on their age, their age of arrival to the United States (considered 0 if U.S.-born), whether their parents were still married to each other and whether they had any siblings. These variables were included in our hypothesized model as covariates.

Results

Plan of Analyses

The data analyses proceeded in three steps. First, parent-child acculturation discrepancy scores were calculated using multilevel models. Second, structural models examined both the concurrent and longitudinal relationships among acculturation discrepancy, parenting, sense of alienation, and adolescent outcomes (depressive symptoms and academic performance). Both concurrent and longitudinal indirect effects were tested between acculturation discrepancy and adolescent outcomes. These structural models were estimated separately for mother-adolescent and father-adolescent dyads. Finally, through multiple group analyses, the moderating effects of parental education, parental income, and adolescent sex were examined for paths estimated in the structural model.

Creating Parent-Child Acculturation Discrepancy Scores

Costigan (2010) points out the need to move beyond difference scores in studying acculturation discrepancy and towards a method of modeling discrepancy that takes into account the multilevel structure of dyads. Therefore, multilevel modeling was used to estimate the acculturation discrepancy scores for parent-adolescent dyads in our study. In the section below, we first describe how we created the discrepancy scores using HLM, and then highlight the two major advantages of using this approach compared to relying on the raw score difference approach used in traditional regression analyses.

The following multilevel models were fitted using HLM 6.06 (Raudenbush, Bryk, Cheong, & Congdon, 2004), where:

$$\text{Level 1: } Y_{ij} = \beta_{0j} + \beta_{1j}(\text{report})_{ij} + r_{ij}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + u_{1j}$$

$$\text{Mixed/Combined model: } Y_{ij} = \gamma_{00} + \gamma_{10} * \text{report}_{ij} + (u_{0j} + u_{1j} * \text{report}_{ij} + r_{ij})$$

Y_{ij} represents the observed acculturation score for each individual i (i.e., parent or adolescent) within the same dyad j ;

“Report” is a dichotomous indicator with a value of $-.5$ if the acculturation score is reported by the parent, and $.5$ if reported by the adolescent;

β_{0j} is the latent acculturation mean score between parent and adolescent for each dyad j ;

β_{1j} is the latent acculturation discrepancy score between parent and adolescent for each dyad j ;

r_{ij} is the unique effect associated with individual i nested within dyad j (i.e., measurement error);

γ_{00} is the average acculturation mean score across all dyads;

γ_{10} is the average acculturation discrepancy score across all dyads;

u_{0j} is the unique effect of dyad j on the average acculturation mean score; and

u_{1j} is the unique effect of dyad j on the average acculturation discrepancy score.

Eight models (two waves $\times$ two cultural orientations $\times$ two types of parent-adolescent dyads) were fitted using the Empirical Bayes (EB) estimation procedure (Raudenbush & Bryk, 2002). The above multilevel equations require the user to supply the values of the measurement error for the observed acculturation score in order to have sufficient degrees of freedom to estimate the model (Lyons & Sayer, 2005; Raudenbush, Brennan, & Barnett,

1995). We used the “known variance” option in the HLM software program to supply the calculated measurement error values (i.e., r_{ij}) by using the formula $ME = (1 - \alpha) \cdot \sigma^2$, where α is the reliability of the acculturation measure and σ^2 is the variance of the acculturation measure for each individual in the dataset (Cano, Johnson, & Franz, 2005; Lyons & Sayer, 2005). The EB estimates of β_{Ij} (i.e., acculturation discrepancy in each dyad) of each of the eight models were then saved. The absolute values of β_{Ij} were used as the acculturation discrepancy scores in the subsequent SEM analysis.

There are two major advantages of using the discrepancy score estimates from a multilevel modeling approach compared with the raw score difference obtained with a traditional regression approach. First, the Empirical Bayes estimate of acculturation discrepancy for each dyad is a more precise/stable estimate compared with the ordinary least squares (OLS) estimate procedure (Raundebush & Bryk, 2002). The OLS estimates can be imprecise when the sample size within the cluster (i.e., family) is small, because it uses the data from only one dyad to generate estimates. The Empirical Bayes procedure, on the other hand, utilizes not only the data from the dyad in question, but also the data from all other dyads similar to that dyad in the entire dataset to arrive at its estimates. In other words, the EB estimates borrow strength from all of the information on acculturation scores in the entire dataset to improve the estimates for dyad acculturation discrepancy scores.

Second, multilevel modeling provides a more accurate estimation of discrepancy scores because, unlike the traditional regression approach, it allows for estimating and partialling out of measurement error. By using multilevel modeling, the variance of observed acculturation scores is decomposed into two parts: 1) the variance associated with dyads and 2) the variance associated with the individual members comprising the dyads (i.e., the variance due to measurement error). The discrepancy scores are estimated with the latter component of variance partialled out. The traditional regression method, on the other hand, does not distinguish between these two components of variance and thus is unable to partial out measurement error for discrepancy scores. This may be problematic because measurement error in the independent variable may lead to biased estimation in regression and SEM analysis (Kline, 2011).

Descriptive Statistics and Inter-correlations among Study Variables

Table 1 displays descriptive statistics and bivariate correlations among the Wave 1 and Wave 2 study variables. The correlational analyses revealed four sets of general findings. First, a variable assessed at Wave 1 is significantly related to the same variable re-assessed at Wave 2. Second, American orientation discrepancy between parents and adolescents at Wave 1 is significantly related to the use of unsupportive parenting techniques at both waves among father-adolescent dyads and at Wave 1 among mother-adolescent dyads. On the other hand, Chinese orientation discrepancy between parents and adolescents is not significantly related to unsupportive parenting. Third, unsupportive parenting is, in general, significantly related to a sense of alienation between parents and children both concurrently and longitudinally. Last, the sense of alienation between parents and children shows some significant associations with negative adolescent outcomes (more depressive symptoms and poorer academic performance) both concurrently (more apparent at Wave 1 than Wave 2) and longitudinally.

Analyses of Structural Model

Structural equation modeling was used to test the hypothesized paths depicted in Figure 1 using Mplus 6.11 (Muthén & Muthén, 1998–2011). Both concurrent (within Wave 1 or within Wave 2) and longitudinal (across Wave 1 and Wave 2) paths among the model constructs were tested. Both direct and indirect effects were tested simultaneously in Mplus.

Inferences for the indirect effects were estimated using the delta method (Muthén & Muthén, 1998–2011).

Eight separate models were fitted using either American or Chinese orientation discrepancy between parents and adolescents as the exogenous variable, and either adolescents' depressive symptoms or academic performance as the endogenous variable in two types of parent-adolescent dyads (father-adolescent and mother-adolescent). For models with adolescents' academic performance as the endogenous variable, a6 paths in Figure 1 were not estimated because the scores were collected one year prior to Wave 2 data collection.

Linking parent-child acculturation discrepancy, parenting, sense of alienation in parent-child relationship, and adolescent adjustment—The first set of estimated models (Models 1 to 4 in Table 2) use American orientation discrepancy as the exogenous variable, and unsupportive parenting, sense of alienation in the parent-child relationship, and one of the two adolescent outcome variables as the endogenous variables. The second set of estimated models (Models 5 to 8 in Table 3) is identical to the first set, except that the exogenous variable is Chinese orientation discrepancy between parents and adolescents. The fit indices for these models across father-adolescent and mother-adolescent dyads are displayed in Tables 2 and 3, revealing a fair to good model fit.

Parameter estimates in Tables 2 and 3 correspond to the path letters depicted in Figure 1. Tests of stability paths (b paths) are significant in all the models. Tests of concurrent relationships show three patterns. First, parent-child acculturation discrepancy is related to unsupportive parenting at Wave 1 in models for American orientation (a1 path in Models 1 to 4). This relationship is not significant at Wave 2 (a4 paths) in any of the models. Second, unsupportive parenting is associated with a stronger sense of alienation between parents and adolescents at both waves (a2 and a5 paths) in all the models. Third, a stronger sense of alienation is in turn related to more negative adolescent outcomes at both waves (a3 and a6 paths) in all the models.

Tests of cross-lagged paths show that unsupportive parenting at Wave 1 is related to a weaker sense of alienation at Wave 2 (c2 path) among father-adolescent dyads (Models 1, 3, 5 and 7), which seems to counter our hypothesis. However, with the initial level of alienation controlled in the model, this unexpected relationship may actually suggest a “ceiling effect” in the increase in alienation across waves (Allen, et al., 2007). That is, increases in sense of alienation may be smaller among father-adolescent dyads who reported a higher level of unsupportive parenting practices at Wave 1 than among their counterparts. To test this supposition, father-adolescent dyads were assigned into one of three groups according to whether parents reported high, medium or low levels of unsupportive parenting at Wave 1. Regression analyses demonstrated that the sense of alienation varied to a lesser degree across waves among those in the group with a high level of unsupportive parenting than among those in the group with a low level, which supports the “ceiling effect” hypothesis.

Tests of alternative cross-lagged paths demonstrate two significant relationships. First, a stronger sense of alienation at Wave 1 is related to unsupportive parenting practices at Wave 2 (d2 path) among mother-adolescent dyads (Models 2, 4, 6 and 8). Second, a high level of depressive symptoms at Wave 1 is related to a stronger sense of alienation at Wave 2 (d3 path) among father-adolescent dyads (Models 1 and 5).

Indirect effects—To examine possible indirect effects, all potential mediating pathways from the exogenous variables (discrepancy at Wave 1 or Wave 2) to endogenous variables (adolescent outcomes at Wave 1 or Wave 2) were tested in Mplus. In models involving

Chinese orientation discrepancy as the exogenous variable, none of the indirect effects is significant. In models involving American orientation discrepancy as the exogenous variable, there are two types of significant indirect effects (shown in Table 2). The first significant mediating pathway is among the Wave 1 constructs, from American orientation discrepancy to unsupportive parenting to sense of alienation in the parent-child relationship to adolescent outcomes. This mediating pathway is significant among father-adolescent dyads (Models 1 and 3) and marginally significant among mother-adolescent dyads (Models 2 and 4). The second significant mediating pathway is from American orientation discrepancy to unsupportive parenting to parent-child sense of alienation to adolescent outcomes, all at Wave 1, to adolescent outcomes at Wave 2. This mediating pathway is significant among father-adolescent dyads (Models 1 and 3) and marginally significant among mother-adolescent dyads with academic performance as the outcome variable (Model 4). Overall, there are four significant mediating pathways for models involving father-adolescent dyads, and three marginally significant mediating pathways for models involving mother-adolescent dyads.

Moderation Analyses by Parental Educational Level, Parental Income, and Adolescent Sex

Multiple group analyses were conducted to determine whether adolescent sex, parental educational level and parental income level moderate the paths of the structural models. Moderation analyses were conducted only for the structural models demonstrating at least a marginally significant indirect effect. These moderation analyses were conducted through multiple-group analyses, in which a model constraining all structural paths to be invariant across groups is compared to a model that freely estimates all paths. When a chi-square test between an invariant and a freely estimated model produces significant overall results, individual paths of the structural model are tested to determine if there are significant differences across groups.

The groupings for lower and higher parental education levels and family income were based on the median of each variable across waves and reporters (for parental education levels, the median is “completed at least a high school education”; for family income, the median is “an annual income of \$30,000–\$45,000”). Results showed no significant moderating effect of parental income or adolescent sex. Only one significant moderating effect, parental education among mother-adolescent dyads, emerged in Models 2 and 4 ($\chi^2(23, N = 379) = 36.63, p = .04$ for Model 2; $\chi^2(23, N = 379) = 36.65, p = .04$ for Model 4). Tests of individual paths reveal that the stability path of mother-child discrepancy in American orientation (b1 path) is stronger in the group of mothers with a lower level of education ($\chi^2(1, N = 379) = 4.61, p = .03$ for Model 2; $\chi^2(1, N = 379) = 4.59, p = .03$ for Model 4). These two paths are also denoted in Table 2.

Discussion

In assessing acculturation, parenting, parent-child sense of alienation, and adolescent outcomes at two time points separated by four years, the present study examines the longitudinal effects of parent-child acculturation discrepancy on adolescent adjustment. This study adds to the literature by demonstrating that parent-child discrepancy in American orientation has a persistent negative effect on adolescent mental health and academic performance from early to middle adolescence. In contrast, the effect of parent-child discrepancy in Chinese orientation has no significant effect on adolescent adjustment. The present study also highlights the role of unsupportive parenting and parent-child sense of alienation in explaining the relationship between parent-child American orientation discrepancy and adolescent developmental outcomes, especially among father-adolescent dyads.

The current study has several methodological advantages. First, to our knowledge, our study is one of the first to employ multilevel modeling techniques to create discrepancy scores for parents' and children's acculturation levels. The extant literature relies on difference scores or interaction terms to assess parent-child acculturation discrepancy (Birman, 2006b), which do not take the dyadic structure of the data into account and may create imprecise acculturation discrepancy scores. In comparison, by employing the Empirical Bayes (EB) estimation procedure for data with a dyadic structure, and by estimating and partialling out measurement error, multilevel modeling provides a more accurate and stable estimation of acculturation discrepancy scores. In addition, the current study examines multiple indicators of adolescent adjustment, including depressive symptoms and academic performance (GPA and standardized test scores). Previous studies on the link between acculturation discrepancy and adolescent academic performance have focused on GPA as a lone indicator (Farver, et al., 2002). GPA may reflect adolescents' effort in school without providing an adequate measure of skills as assessed by standardized test scores (Fuligni, 1997; Kao & Tienda, 1995). Therefore, including both GPA and standardized test scores as indicators of academic performance, along with measuring adolescents' depressive symptoms, provides an integrated view of adolescent adjustment as it relates to the acculturation discrepancy hypothesis.

The current study found that only a discrepancy in parents' and children's American orientation, and not in their Chinese orientation, significantly affects adolescents' depressive symptoms and academic performance through the mediators of unsupportive parenting and a sense of alienation in the parent-child relationship, examined sequentially. This finding diverges from results reported in previous studies, which found that discrepancies in both host and heritage cultural orientations relate to adolescent maladjustment (Birman, 2006a; Farver, et al., 2002). This inconsistency may be due to the fact that the present study uses different mediators (parenting and alienation in the parent-child relationship) than previous studies, which focused on family conflict. Family conflict can result from discrepancy in either American or heritage cultural orientation, as long as there is disagreement between family members. In comparison, parenting practices may be more influenced by parent-child discrepancy in American orientation, specifically. This phenomenon may be explained by immigrant parents' socialization goals for their children, which tend to emphasize achievement and success in the mainstream culture (Chao, 1994). If the degree to which immigrant parents espouse mainstream values, beliefs and behaviors is discrepant from that of their children, they are less likely to recognize or understand the challenges their children encounter in the mainstream culture. They may also feel especially uncertain or inadequate in supporting and guiding their children through these challenges, because as foreigners in a host country, they are less familiar with the mainstream culture. More generally, parent-child discrepancy in American orientation may undermine parents' personal psychological resources, such as self-efficacy (Buki, et al., 2003), thus constraining their ability to understand and meet their children's developmental needs (Belsky, 1984). Although some scholars note that parents may feel dismayed or even betrayed by children's low endorsement of their heritage culture (Ying & Chao, 1996), we did not find a significant link between parent-child discrepancy in Chinese orientation and unsupportive parenting. This may suggest that, for Chinese immigrant parents, losing competence in supporting and guiding children in the process of adjusting to the mainstream culture may be a more salient issue. The current findings support the extant literature in suggesting the need to move beyond focusing on the direct relationship between acculturation discrepancy and child maladjustment to examining specific family dynamics as a mechanism of this relationship for different types of acculturation discrepancy in families.

Previous studies investigating mechanisms that may mediate the relationship between acculturation discrepancy and adolescent outcomes have used a cross-sectional design

(Dumka, Roosa, & Jackson, 1997), which makes it difficult to untangle potential causes from effects. The longitudinal data in the present study enabled us to test all the potential links between model constructs across two waves. Only two alternative pathways emerged: one link was between sense of alienation in early adolescence and unsupportive parenting in middle adolescence among mother-adolescent dyads, and the other was between depressive symptoms in early adolescence and sense of alienation in middle adolescence among father-adolescent dyads. However, these alternative causal directions were not part of any significant indirect pathways. At the same time, our main study results do support the hypothesized link from parent-child acculturation discrepancy to parenting to parent-child sense of alienation to adolescent adjustment. Thus, the study findings highlight the role acculturation discrepancy plays in setting in motion a family process that ultimately relates to less positive adolescent adjustment.

The present study shows that depressive symptoms and academic performance in middle adolescence are both influenced by acculturation discrepancy through one major pathway. During early adolescence, a high level of parent-child American orientation discrepancy is associated with unsupportive parenting, which increases a sense of alienation between parents and children, which in turn is associated with more depressive symptoms and lower academic performance. These developmental outcomes established in early adolescence persist into middle adolescence. This result is consistent with previous findings that developmental outcomes become more stable during the adolescent years (Block & Robins, 1993). It appears that the negative effect of parent-child acculturation discrepancy on child maladjustment may be more influential during early adolescence than during middle adolescence. As the effectiveness of intervention programs depends on delivering the program when its effects may be strongest (McLeod & Kaiser, 2004), it may be more fruitful for interventions to target unsupportive parenting and parent-child sense of alienation in early adolescence in order to attenuate the negative effect of acculturation discrepancy. However, the current study lacks the ability to detect when the proposed mediating effect is the strongest in the life course, as only two time points are examined. Data on additional developmental periods are needed to identify the most effective intervention points.

The present study also obtained data from multiple informants, which enabled a comparison between father-adolescent and mother-adolescent dyads. The sequential mediating effects of unsupportive parenting and parent-child sense of alienation in the relationship between parent-child acculturation discrepancy and child maladjustment were significant among father-adolescent dyads, but only marginally significant among mother-adolescent dyads. This finding is somewhat consistent with a longitudinal study on Mexican American families, which found earlier parent-child acculturation discrepancy among father-adolescent dyads to be significantly related to later adolescent internalizing and externalizing problems; the same link was not evident among mother-adolescent dyads (Schofield, Parke, Kim, & Coltrane, 2008). The comparatively greater influence of fathering on adolescents' depressive symptoms and academic performance found in the current study may be attributed to fathers being more involved in socializing children into the outside world (Paquette, 2004). Moreover, in Chinese immigrant families, fathers are generally more involved in American culture than mothers are (Kim, Gonzales, Stroh, & Wang, 2006). In this case, they may be better positioned to help adolescents with their problems because of their greater familiarity with American culture and institutions. Our results suggest that future interventions to improve adolescent adjustment in Chinese immigrant families should prioritize targeting fathers to improve paternal parenting practices and reduce father-child sense of alienation. However, this finding cannot be taken as license to pay less attention to mothers' role in child development, nor as evidence that mothering is not as important as fathering. Given mothers' greater involvement in caregiving and meeting

children's relational needs (Paquette, 2004), future studies examining parent-child acculturation discrepancy and other developmental outcomes (e.g., self-concept and interpersonal behaviors) may find that mothering has a greater influence than fathering on their outcomes of interest.

Both the moderating effects of adolescent sex and parental socio-economic status were examined. Little evidence was found for the moderating effect of adolescent sex. A moderating effect of parental socio-economic status, on the other hand, was found in the relationship between parent-child acculturation discrepancy in early and middle adolescence. Parent-child acculturation discrepancy is more stable from early to middle adolescence among mothers with a lower level of education. Though further evidence is needed, and the current finding is not a direct or complete confirmation of Portes and Rumbaut's (1996) assertion that parent-child acculturation discrepancy has a more deleterious effect in families with fewer economic and educational resources, it does suggest that the effect of parent-child acculturation discrepancy is more persistent among families with a lower socio-economic status.

There are several limitations to the current study. First, as the data were collected from areas with a dense population of Chinese immigrants (Asians accounted for 20 to 60 percent of the student population at participating schools) and because there was a low participation rate (47% at Wave 1), future studies are needed to examine whether the current findings can be replicated in other samples of Chinese immigrant families. Second, although our study has identified early adolescence as a better intervention point than middle adolescence, more research is needed to pinpoint more exactly the developmental period most amenable to intervention. For example, further studies could explore whether the current findings can be replicated in middle and late childhood. Third, the path from unsupportive parenting to standardized test scores in English and Math at Wave 2 was dropped in the structural equation modeling, because the test scores were collected one year prior to Wave 2 data collection. Fourth, the four-year gap between data collection waves may hinder the detection of longitudinal effects. It may also account for the fact that the current study found fewer significant cross-lagged relations than concurrent relations among model constructs. Finally, the current study does not take into account peer group influences, which play an important role in adolescent adjustment. Future studies are needed to explore the effect of adolescent peer groups in the relationship between parent-child acculturation discrepancy and child maladjustment.

In conclusion, parent-child acculturation discrepancy in early adolescence sets in motion a family process that has a persistent effect on adolescent depressive symptoms and academic performance from early to middle adolescence. The current study findings highlight the importance of decreasing parent-child acculturation discrepancy, especially American orientation discrepancy among father-adolescent dyads, as well as increasing supportive parenting practices and decreasing a sense of alienation in the parent-child relationship early in adolescence, in order to improve the adjustment of adolescents from Chinese immigrant families.

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Figure 1.
Conceptual model linking parent-child acculturation discrepancy, parenting, alienation, and adolescent adjustment in Chinese immigrant families

Table 1
Means, Standard Deviations, and Zero-Order Correlations among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	Mean	SD
1 W1 American Discrepancy	-	.26***	.24***	-.03	-.11*	-.11 [†]	-.07	.00	.01	-.02	.04	-.01	.46	.33
2 W2 American Discrepancy	.22**	-	.03	.04	-.03	-.07	-.02	-.01	-.09	-.04	.04	.03	.53	.38
3 W1 Chinese Discrepancy	.16**	.13 [†]	-	.13*	.04	-.04	-.03	.03	-.02	-.03	.08	.07	.42	.34
4 W2 Chinese Discrepancy	.01	.07	.20**	-	.08	-.01	-.08	.02	.05	.03	-.01	-.04	.40	.31
5 W1 Parenting	-.17**	-.08	.08	-.08	-	.51***	-.36***	-.30***	-.13*	-.07	.16**	.16**	.01	.41
6 W2 Parenting	-.22**	-.13 [†]	.05	-.07	.46***	-	-.33***	-.37***	-.11 [†]	-.03	.17**	.18**	-.03	.43
7 W1 Alienation	.02	-.08	-.01	-.02	-.31***	-.15*	-	.40***	.17**	.11 [†]	-.15**	-.08	.01	1.06
8 W2 Alienation	-.03	.02	-.04	.07	-.08	-.30***	.23**	-	.15*	.18**	-.14*	-.07	.01	1.03
9 W1 Depression	-.09	-.16*	-.03	-.03	-.04	.01	.21***	.21**	-	.35***	-.16**	-.16**	12.99	8.34
10 W2 Depression	-.08	.00	-.09	-.09	-.09	.03	.19**	.24***	.35***	-	-.16**	-.20**	14.43	9.43
11 W1 Academic Performance	-.02	-.03	.08	-.08	.20***	.10	-.17**	-.14*	-.16**	-.16**	-	.74***	.03	.32
12 W2 Academic Performance	.00	-.01	-.03	-.02	.23***	.17*	-.20**	-.12 [†]	-.16**	-.20**	.74***	-	-.02	.35
Mean	.43	.52	.41	.41	.06	-.07	-.04	.09	12.99	14.43	.02	-.03		
SD	.31	.39	.35	.32	.47	.56	1.21	1.08	8.34	9.43	.32	.34		

Note: Correlations above the diagonal are between mothers and adolescents ($N = 379$), and below the diagonal are between fathers and adolescents ($N = 379$); W1 = Wave 1, W2 = Wave 2; Parenting is the factor score of parental warmth, monitoring and inductive reasoning reported by parents; Alienation is the factor score of parent and teen reports; Academic performance is the factor score of GPA and California Standards Test for Math and English;

[†] $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 2

American Orientation Discrepancy, Parenting, Alienation and Adolescent Adjustment

Model	Depressive Symptoms				Academic Performance			
	1		2		3		4	
	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent
Parameter Estimates	β	CI	β	CI	β	CI	β	CI
a1 Disc W1 $\rightarrow$ Parent W1	-.17**	[-.28, -.06]	-.11*	[-.22, -.01]	-.17**	[-.28, -.06]	-.11*	[-.22, -.01]
a2 Parent W1 $\rightarrow$ Alien W1	-.31***	[-.41, -.21]	-.36***	[-.45, -.27]	-.32***	[-.42, -.22]	-.36***	[-.45, -.27]
a3 Alien W1 $\rightarrow$ Outcome W1	.21***	[.11, .31]	.18**	[.07, .28]	-.16**	[-.27, -.06]	-.15**	[-.26, -.05]
a4 Disc W2 $\rightarrow$ Parent W2	-.07	[-.19, .05]	-.04	[-.15, .06]	-.07	[-.19, .04]	-.04	[-.15, .07]
a5 Parent W2 $\rightarrow$ Alien W2	-.34***	[-.47, -.21]	-.23***	[-.36, -.11]	-.34***	[-.48, -.21]	-.23***	[-.36, -.10]
a6 Alien W2 $\rightarrow$ Outcome W2	.17**	[.04, .29]	.14*	[.01, .26]				
b1 Disc W1 $\rightarrow$ Disc W2	.21**	[.08, .33]	.26***	[.14, .38]	.21**	[.08, .33]	.26***	[.14, .38]
b2 Parent W1 $\rightarrow$ Parent W2	.45***	[.33, .57]	.43***	[.33, .54]	.45***	[.33, .57]	.43***	[.33, .54]
b3 Alien W1 $\rightarrow$ Alien W2	.23**	[.09, .37]	.28***	[.17, .40]	.26**	[.12, .39]	.29***	[.17, .40]
b4 Outcome W1 $\rightarrow$ Outcome W2	.29***	[.19, .40]	.33***	[.22, .43]	.74***	[.69, .79]	.76***	[.71, .81]
c1 Disc W1 $\rightarrow$ Parent W2	-.09	[-.21, .03]	-.08	[-.20, .03]	-.09	[-.21, .03]	-.08	[-.20, .03]
c2 Parent W1 $\rightarrow$ Alien W2	.15*	[.00, .29]	-.07	[-.20, .07]	.19*	[.04, .33]	-.07	[-.21, .06]
c3 Alien W1 $\rightarrow$ Outcome W2	.09	[-.03, .20]	.00	[-.12, .12]	-.07 [†]	[-.14, .01]	.04	[-.03, .11]
d1 Parent W1 $\rightarrow$ Disc W2	-.02	[-.15, .11]	-.01	[-.13, .11]	-.02	[-.15, .11]	-.01	[-.13, .11]
d2 Alien W1 $\rightarrow$ Parent W2	.03	[-.11, .17]	-.17**	[-.28, -.06]	.02	[-.11, .16]	-.18**	[-.28, -.07]
d3 Outcome W1 $\rightarrow$ Alien W2	.18**	[.06, .30]	.06	[-.05, .17]	-.12 [†]	[-.24, .01]	-.03	[-.15, .10]
Indirect Pathways								
Disc W1 $\rightarrow$ Parent W1 $\rightarrow$ Alien W1 $\rightarrow$ Outcome W1	$\beta = .011, p = .024$		$\beta = .007, p = .087$		$\beta = -.009, p = .044$		$\beta = -.006, p = .096$	
Disc W1 $\rightarrow$ Parent W1 $\rightarrow$ Alien W1 $\rightarrow$ Outcome W1 $\rightarrow$ Outcome W2	$\beta = .003, p = .038$		$\beta = .002, p = .100$		$\beta = -.006, p = .044$		$\beta = -.005, p = .097$	
Model Fit	$\chi^2(32, N = 379) = 54.463, p = .008$ CFI = .904 RMSEA = .043				$\chi^2(32, N = 379) = 51.975, p = .014$ CFI = .957 RMSEA = .041			
	$\chi^2(32, N = 379) = 33.777, p = .382$ CFI = .997 RMSEA = .012							

Model	Depressive Symptoms				Academic Performance			
	1		2		3		4	
	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent	Father-Adolescent	Mother-Adolescent
	β	CI	β	CI	β	CI	β	CI
	SRMR = .049		SRMR = .034		SRMR = .051		SRMR = .042	

Note: Maximum likelihood estimation is used to estimate all models; CI = 95% confidence interval, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square; a6 paths in Figure 1 were dropped for academic performance models because English and Math CST scores were collected one year prior to Wave 2 data collection; disc = discrepancy, parent = parenting, alien = alienation;

a: the path is stronger for lower than higher maternal educational group;

[†] $p < .10$,
* $p < .05$,
** $p < .01$,
*** $p < .001$.

Table 3
Chinese Orientation Discrepancy, Parenting, Alienation and Adolescent Adjustment

Model	Depressive Symptoms						Academic Performance					
	5			6			7			8		
	Father-Adolescent	Mother-Adolescent		Father-Adolescent	Mother-Adolescent		Father-Adolescent	Mother-Adolescent		Father-Adolescent	Mother-Adolescent	
Parameter Estimates	β	CI		β	CI		β	CI		β	CI	
a1 Disc W1 → Parent W1	.08	[-.03, .19]		.04	[-.06, .15]		.08	[-.03, .19]		.04	[-.06, .15]	
a2 Parent W1 → Alien W1	-.31***	[-.41, -.21]		-.36***	[-.45, -.27]		-.32***	[-.42, -.22]		-.36***	[-.45, -.27]	
a3 Alien W1 → Outcome W1	.21***	[.11, .31]		.18**	[.07, .28]		-.16**	[-.27, -.06]		-.15**	[-.26, -.05]	
a4 Disc W2 → Parent W2	-.03	[-.15, .08]		-.05	[-.15, .06]		-.03	[-.15, .09]		-.05	[-.15, .06]	
a5 Parent W2 → Alien W2	-.34***	[-.48, -.21]		-.24***	[-.36, -.11]		-.35***	[-.48, -.21]		-.24***	[-.36, -.11]	
a6 Alien W2 → Outcome W2	.17**	[.04, .29]		.14*	[.01, .26]							
b1 Disc W1 → Disc W2	.23**	[.09, .37]		.13*	[.01, .26]		.23**	[.09, .37]		.13*	[.01, .26]	
b2 Parent W1 → Parent W2	.48***	[.37, .59]		.46***	[.36, .56]		.48***	[.36, .59]		.46***	[.36, .56]	
b3 Alien W1 → Alien W2	.23**	[.09, .37]		.28***	[.17, .40]		.26***	[.12, .39]		.29***	[.17, .40]	
b4 Outcome W1 → Outcome W2	.29***	[.19, .40]		.33***	[.22, .43]		.74***	[.69, .79]		.76***	[.71, .81]	
c1 Disc W1 → Parent W2	-.01	[-.15, .13]		-.09	[-.20, .02]		-.01	[-.15, .13]		-.09	[-.20, .02]	
c2 Parent W1 → Alien W2	.15*	[.00, .30]		-.06	[-.20, .07]		.19*	[.04, .34]		-.07	[-.20, .07]	
c3 Alien W1 → Outcome W2	.09	[-.03, .20]		.00	[-.12, .12]		-.07 [†]	[-.14, .01]		.04	[-.03, .11]	
d1 Parent W1 → Disc W2	-.10	[-.23, .03]		.06	[-.06, .19]		-.10	[-.23, .03]		.06	[-.06, .19]	
d2 Alien W1 → Parent W2	.04	[-.10, .18]		-.16**	[-.27, -.06]		.03	[-.10, .17]		-.17**	[-.27, -.06]	
d3 Outcome W1 → Alien W2	.18**	[.06, .30]		.06	[-.05, .18]		-.12 [†]	[-.24, .01]		-.03	[-.15, .10]	
Model Fit	$\chi^2(32, N = 379) = 45.127, p = .062$ CFI = .938 RMSEA = .033 SRMR = .043			$\chi^2(32, N = 379) = 31.002, p = .517$ CFI = 1.000 RMSEA = .000 SRMR = .036			$\chi^2(32, N = 379) = 55.184, p = .007$ CFI = .949 RMSEA = .044 SRMR = .050			$\chi^2(32, N = 379) = 39.721, p = .164$ CFI = .985 RMSEA = .025 SRMR = .046		

Note: Maximum likelihood estimation is used to estimate all models; CI = 5% confidence interval, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square; a6 paths in Figure 1 were dropped for academic performance models because English and Math CST scores were collected one year prior to Wave 2 data collection; disc = discrepancy, parent = parenting, alien = alienation;

[†] $p < .10$,
^{*} $p < .05$,
^{**} $p < .01$,
^{***} $p < .001$.