

## Article

# The Structural Relationship among Trajectories of Ego-resilience, Neglectful Parenting, Bilingual Competency, and Acculturative Stress of Multicultural Adolescents in South Korea

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**Abstract:** The purpose of this study was to investigate the trajectories of multicultural adolescents' ego-resilience, to compare the effects of neglectful parenting and bilingual competency on the trajectories, and to analyze the longitudinal mediation effect of ego-resilience on these variables' influence to acculturative stress. In order to accomplish these aims, analysis was conducted using the data of 1,392 adolescents from the Multicultural Adolescents Panel Study. For statistical analysis, AMOS 20.0 was utilized for latent growth modeling and structural equation modeling. Results indicated: (1) a quadratic increase in ego-resilience of multicultural adolescents; (2) a difference in the trajectory of ego-resilience according to gender, with males displaying lower initial values and more rapid growth; (3) significant effects of neglectful parenting and bilingual competency on the trajectories of ego-resilience; and (4) mediating effects of ego-resilience between (a) neglectful parenting and acculturative stress, and (b) bilingual competence and acculturative stress. In accordance with the view of adolescents as prospective leaders in promoting a sustainable future, this study offers insight on the positive psychosocial development and well-being of multicultural adolescents.

**Keywords:** multicultural adolescents; ego-resilience; acculturative stress; latent growth modeling

## 1. Introduction

Adolescence is a critical period of development in the physical, emotional, and cognitive domains. This developmental period is also significant in the establishment of an adolescent's self-identity. With the onset of puberty, adolescents are more vulnerable to various risk factors as they encounter physical and emotional changes. Within the context of an ethnically homogenous society like South Korea, multicultural adolescents are more likely to be affected by risk factors, particularly in experiencing identity confusion [1,2]. Considering the significant growth in the number of multicultural families and youths in South Korea, examining changes of ego-resilience among early adolescents of multicultural families may be beneficial in understanding and supporting multicultural adolescents' adaptation to their dynamic environment. Furthermore, focusing on the multicultural community is meaningful in that it allows researchers to consider the significance of social sustainability in seeking strategies to promote the well-being of current and future generations rooted in ethnic diversity [3,4].

Early adolescence is recognized as a crucial phase in which youths face various challenges such as the progression from elementary to middle school, physical and emotional development, escalated burdens of academic achievement and the formation of self-identity [5,6]. In addition to these commonly experienced developmental milestones, adolescents of multicultural families may

also speculate on their bicultural identities [7], marking the significance of this transitional period to middle school.

Ego-resilience is a personal trait that indicates how well one is able to positively cope with change and stress [8]. Since a person of high ego-resilience exhibits greater agility as they encounter novel and challenging experiences [9], ego-resilience can be a good predictor of cultural adaptation. Furthermore, examining how ego-resilience changes over time allows a more comprehensive understanding of the dynamics of adaptation. A longitudinal study on the development of an individual's ego-resilience from infancy to adulthood [9] revealed that ego-resilience was relatively stable during adolescence. For males, ego-resilience revealed a consistent positive correlation not only in proximal age range comparison, but also between childhood and adolescence. In contrast, for females, correlation was found to be significant only between proximal age ranges, whereas the correlation of ego-resilience between childhood and adolescence was not significant. However, a more recent longitudinal study in Sweden [10] reported changes in ego-resilience during the transition phase from childhood to adolescence, which was contrary to results from previous research findings. Specifically, high ego-resilience levels of male adolescents decreased, while low ego-resilience levels of female adolescents increased, ultimately scoring above male adolescents' ego-resilience levels. To add, the level of increase for ego-resilience among females was significantly greater than the level of decrease among males, resulting in a greater variability among ego-resilience for female adolescents. Collectively, these findings indicate a greater dynamic of ego-resilience among female adolescents. Yet, the number of longitudinal research that examine the ways in which these changes occur from childhood to adolescence is scarce. Especially for youths who are more susceptible to developmental risks during adolescence, investigation on how ego-resilience changes within this transitional phase is necessary because ego-resilience can be used as a predictor to identify the possibility of temporary/prolonged maladaptation (or healthy development) notwithstanding the presence of risk factors. In examining the trajectories of ego-resilience of multicultural adolescents during the transitional phase, researchers may better understand the psychological wellbeing and adaptive capabilities of such individuals.

Both risk and protective factors have been selected for analysis in this study. This analytic strategy is deemed to be more effective in understanding ways to simultaneously promote adaptation mechanisms and reduce maladjustment [11]. Evidently, parenting plays a critical role in the developmental process because it has the most direct and lasting influence on adolescents. Parental affection and concern significantly contribute to adolescents' ego-resilience [12,13], while parental abuse and neglect have negative effect on adolescent development [14]. Hence, negative parental attitude involving neglectful parenting is defined as a risk factor. Concurrently, language fluency serves as a resource for multicultural youths and a measure of how well adolescents communicate with their mothers using a minority language. Therefore, bilingual competency is identified as a protective factor. In Korea, multicultural adolescents who simultaneously use Korean and their mother's native language become "interpreters"; this communication process becomes a foundation for both mothers and adolescents to adapt into the Korean culture [15]. Language, seen not only as a tool for communication and culture, but also for resilience, is ultimately a platform for sustainable development [16]. Maintaining the minority culture through the use of a mother's native language by means of bilingual competency offers considerable value in the current research in promoting cultural sustainability [3].

This study seeks to analyze the development of ego-resilience among multicultural youths over time within the context of South Korea, a country with a predominantly homogenous ethnic population. Specifically, the impact of adolescents' perception of parental neglect and bilingual competence on the developmental trajectories of ego-resilience is examined. Moreover, this study investigates whether parental neglect, bilingual competence, and the developmental trajectories of ego-resilience significantly influence acculturative stress experienced by multicultural adolescents. This study aims to advocate social and cultural sustainability by raising more awareness of the dynamics of positive development with the inclusion of individuals from diverse ethnic backgrounds. Ultimately, the current research focuses on strengthening multicultural adolescents' resilience, seeking to fulfill Sustainable

Development Goals (SDG) of promoting good health and reducing inequality. Based on the research goals formulated for the current study, we propose the following research questions:

*Research Question 1:* What developmental trajectories of ego-resilience are exhibited by multicultural adolescents as these individuals transition from childhood to adolescence, and are there any significant gender differences within these trajectories?

*Research Question 2:* Does the developmental trajectory of ego-resilience significantly mediate the effects of neglectful parenting and bilingual competency on acculturative stress?

## 2. Literature Review

### 2.1. Multicultural Families in South Korea

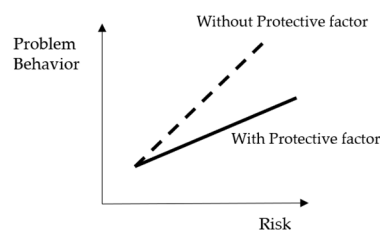
Since the 2000s, South Korea has been reporting a sharp rise in international marriages and immigrant populations, leading to an increase in multicultural families. The total number of children from multicultural families enrolled in elementary, middle and high schools was 44,213 in 2012; 50,492 in 2014; and 86,522 in 2016, reflecting a rapid increase of the multicultural population in Korea [17,18]. Multicultural families in South Korea are generally comprised of Korean males who are married to women of Asian nationalities. Husbands are the main income providers for a majority of these households, thus increasing the tendency of married immigrant women to assimilate into the mainstream culture [19]. Accordingly, multicultural adolescents in South Korea are exposed to a bicultural, bilingual environment. Growing up in multicultural families provides adolescents with unique learning experiences of adapting to various cultures, while exposing adolescents to acculturative stress such as deprivation of belongingness or holistically identifying with one particular cultural group. Language acquisition may also offer both benefits and disadvantages, as adolescents are given the opportunity to learn a second language of a parent's native tongue, while experiencing more difficulty in developing fluency of the mainstream language due to limitations of language stimulation in the home environment. Thus, adolescents who are raised in multicultural environments face various protective and risk factors that may either facilitate development by enabling diverse interactions to become more open-minded or hinder healthy growth and development.

### 2.2. Theoretical Model: Ego-resilience as a Mediator

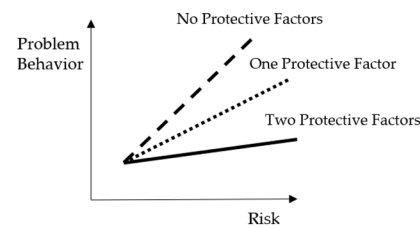
Adverse circumstances or environments may be considered as risk factors that increase the probability of negative outcomes in relation to adaptation among adolescents who are generally more vulnerable during this developmental phase [20]. However, the presence of these risk factors does not necessarily predict negative effects on adolescent development; rather, the impact of risk factors may vary according to the individual's ability to overcome these challenges [21]. In other words, resilience can be enhanced by facing, rather than avoiding, such obstacles [22]. Protective factors do not indicate the absence of risk factors [21], but serve to mitigate the effects of such risk factors or reduce the probability of maladaptation [20]. Consideration of both risk and protective factors may provide meaningful implications for preventive interventions to reduce the impact of risk factors and to promote protective factors in the healthy development of multicultural adolescents.

Based on resilience theory, the models of resilience explain how protective factors influence negative developmental outcomes of risk factors [23]. The three representative models are the compensation model, protective model, and challenge model [23,24]. The protective model, or interactive model, focuses on the interaction between protective and risk factors. Figure 1 presents two subtypes of the protection model: A. risk-protective model and B. protective-protective model. In both risk-protective and protective-protective models, the protective factor has a buffering effect on risk factors, with the later model indicating greater buffering effects with added protective factors [24]. Hence, protective factors play a significant role in reducing the impact of risk factors.

## Moderating Models

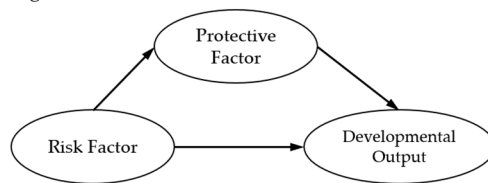


A. Risk-Protective Model

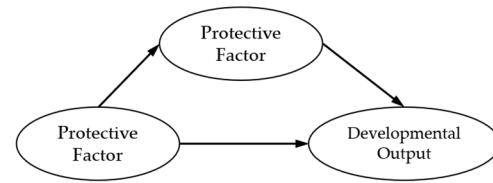


B. Protective-Protective Model

## Mediating Models



C. Risk-Protective Mediating Model



D. Protective-Protective Mediating Model

**Figure 1.** Graphical representations of moderating models and mediating models.

Research of resilience models has generally focused on the buffering effects of protective factors. Notably, psychological processes associated with resilience may vary depending on how characteristics of resilience are defined. When resilience is perceived as a dynamic element, the buffering effects of protective factors can also be considered as a form of resilience in the protection model [25]. Resilience (i.e., ego-resilience), as a characteristic inherent in all individuals, may function as a mediator between risk factors and developmental outcomes; ego-resilience serves as a protective factor to prevent against the impact of negative effects. Hence, ego-resilience can be seen as having a mediating effect rather than a moderating effect [26]. In fact, ego-resilience is known to play significant mediating roles in the relationship between childhood trauma and adult psychological symptoms such as anxiety and depression [26], and between parenting and positive adaptation [27].

The purpose of this study is to verify possible mediating effects of ego-resilience on the relationship between risk/protective factors and developmental adaptation. Based on the risk-protective mediating model, Figure 1C examines the possible mediating effect of ego-resilience between the risk factor of parental neglect and acculturative stress. The examination of this model investigates whether the negative influence of neglectful parenting is mitigated when ego-resilience increases. Based on the protective-protective mediating model, Figure 1D examines the possible mediating effect of ego-resilience between the protective factor of bilingual competence and the negative effects of acculturative stress. The examination of this model investigates whether the increase of ego-resilience strengthens the protective effects of bilingual competency on acculturative stress.

### 2.3. Ego-resilience

Despite exposure to such risk factors, adolescents overcome these obstacles to become healthy adults. Here, resilience is a useful concept that allows researchers to understand individuals who have adapted to the norm despite unfavorable circumstances [28]. Resilience encompasses two core features: (1) the individual is exposed to danger, and (2) the individual has shown positive development despite these circumstances [29]. Those with high resilience are optimistic, utilize available resources, live as active rather than passive agents, and positively cope with stress [30,31]. Resilience can be perceived as a dynamic process or observed as a personal trait, also known as ego-resilience. This trait focuses on the individual's characteristics in dealing with a crisis. Ego-resilience is the propensity of individuals

to adjust to anxiety, positively participate in their environment [32] and execute self-regulation in a changing environment [8].

For multicultural adolescents, ego-resilience serves as a protective factor that reduces the effects of acculturative stress and mediates the effects of predictors of acculturative stress. In fact, studies of multicultural adolescents in South Korea have found that ego-resilience mediated the effects of parenting [27] and bilingual competency [33] on adolescents' adaptation.

#### 2.4. Neglectful Parenting

Parenting attitudes and parent-child relationships are recognized as significant factors on ego-resilience [13,34] and mental health [35,36] during adolescence. Healthy communication between parents and their children is a form of positive modeling, which allows children to learn to successfully cope with stressful events and to develop effective strategies for stress management [34]. Additionally, positive parent-child relationships can enhance ego-resilience by increasing adolescents' self-esteem [13].

Among multicultural adolescents in Korea, research has shown that those who perceived parenting styles as authoritarian or rejective displayed lower levels of positive self-image (i.e., self-esteem). Neglect, a form negative parenting, is observed in situations where children are at risk as parents refuse to practice adequate parenting [37]. A study reported that for multicultural adolescents, variables such as parental neglect, parental attention and family support had significant effects on acculturative stress [38]. These findings suggest that neglectful parenting will lower ego-resilience and increase acculturative stress among multicultural adolescents.

#### 2.5. Bilingual Competency

Certain traits of multicultural adolescents may be a source of stress or conflict, while others may enhance positive development. Bilingualism is a characteristic that allows the use of two languages, and language fluency may depend on the amount of exposure or the "status" of a particular language in one's community [39]. Korean is the major language utilized in communities and schools of South Korea. To add, communication between a mother and her child in the mother's native tongue facilitates a mutual understanding among family members [40]. For most multicultural families, the second language is considered to be a minor language that is utilized at home. In such settings, bilingual fluency of children may depend on the degree of language input provided by parents [40]. Among multicultural families, parents who are concerned about the delay in their children's Korean language acquisition are likely to provide more language stimulation in Korean as compared to a second (minor) language.

Bilingualism among multicultural adolescents is regarded as beneficial in two ways. It offers emotional benefits of increased self-esteem and ego-resilience [33], and cognitive benefits of increased cognitive control [41,42]. Specifically, a mother who is able to communicate fluently in her native language enhances emotional rapport and intimacy with her child [43]. Utilizing a native language is a resource that positively contributes to the mother-child relationship, and language exposure may also function as a constructive strategy to help children of multicultural families recognize their bilingual environment as an asset [44].

While studies point to the possibility that adolescents' proficiency in a mother's native language increases ego-resiliency and lowers acculturative stress, research is rather limited in exploring the relationship of these factors. Although one study reported that fluency in their mother's native language did have a positive effect on cultural identity of multicultural adolescents, no significant effects of ego-resilience was reported [15], which calls for further investigation on this subject.

#### 2.6. Acculturative Stress

Adolescents of ethnic minority groups or immigrant families face discrimination, exclusion and other hardships due to phenotypic bias and social prejudice [45–47]. Moreover, in societies with



strong monoculturalism such as Korea, multicultural adolescents are more likely to experience identity confusion, discrimination and pressure [38].

Acculturative stress is defined as symptoms of physical and mental stress experienced in the process of acculturation. Preceding research has described this variable as “difficulties and stressors arising as part of the adaptation process” [48], or as “losses that occur when adjusting to or integrating a new system of beliefs, routines, and social roles” [49]. Immigrants’ attitudes about the mainstream and native cultures during the process of cultural adaptation are classified into four categories: integration, assimilation, separation, and marginalization [50]. Individuals who identify with categories of integration or assimilation are known to experience less stress in the on-going process of cultural adaptation. Possible stress factors in cultural adaptation include discrimination, negative preconceptions, and social pressure to use the mainstream language [51]. Acculturative stress in bicultural environments deserves more attention, especially when considering possible risk factors such as the decline of psychological health due to heightened levels of depression or enervated optimism [45], negative influence on peer relationships [52] and school adjustment [53,54].

Marital satisfaction, extended settlement period, Korean language skill, financial income, and social support [55,56] have been known to influence acculturative stress of married immigrant women in Korea. However, studies on predictive factors of acculturative stress among multicultural adolescents are significantly limited. As supportive and affirmative parenting is predicted to lower acculturative stress, neglectful parenting is expected to increase acculturative stress. In addition, acculturative stress can be influenced by various personal traits of multicultural adolescents including bilingual competence and ego-resilience.

Based on these findings, the aim of the present study is to examine: (1) the developmental trajectory of ego-resilience of multicultural adolescents and distinctive differences in the trajectory, and (2) the structural relationship of the developmental trajectory of ego-resilience of multicultural adolescents, neglectful parenting, bilingual competence, and acculturative stress.

### 3. Materials and Methods

#### 3.1. Sample

The sample used for this study was obtained from a large dataset, the Multicultural Adolescents Panel Study (MAPS), a nationwide longitudinal study constructed by the National Youth Policy Institute (NYPI). Data collection began in 2011, and annual follow-up surveys were conducted for six consecutive years. A total of 1635 multicultural students in Grade 4 and their mothers participated in this panel survey. The current study used data from the first through fifth waves, with 1392 multicultural students whose mothers were non-Korean residents of South Korea. Demographics for mothers’ nationality were Japanese (35.1%), Filipina (25.9%), and ethnic Koreans of China (19.9%). The gender ratio of youths was fairly balanced between boys (48.9%) and girls (51.1%).

#### 3.2. Measures

Scales used to examine the main variables in this study are listed below. Each item was measured using a four-point Likert scale ranging from ‘Not at all (1)’ to ‘Very much (4),’ with a high score indicating a high level of the respective variable.

##### 3.2.1. Ego-resilience

Ego-resilience was assessed using a version of the scale by Yu and Shim [57] originally developed by Block & Kremen [32]. Ego-resilience consisted of 14 items such as, “I am more curious than others.” The ninth question from the original ego-resilience measure was excluded from the analysis due to low factor loadings, with a total of 13 items in the final analysis. Internal consistencies (Cronbach’s alpha) of the first through fifth waves were good (0.88, 0.90, 0.90, 0.91, and 0.91, respectively).

### 3.2.2. Neglectful Parenting

Neglectful parenting was assessed using a scale by Lee and colleagues [58], with modifications based on items measuring neglect on Huh's parental attitude scale [59] and items from Kim's child abuse scale [37]. Neglectful parenting consisted of five questions such as, "My parents seem to think that their work is more important than me." The internal consistency (Cronbach's alpha) was acceptable (0.78).

### 3.2.3. Bilingual Competence

Bilingual competence measured adolescents' ability to speak, write, read, and comprehend their mother's native language. Scale items were composed by multicultural panel researchers, and the internal consistency (Cronbach's alpha) of the four items was good (0.96).

### 3.2.4. Acculturative Stress

Acculturative stress was assessed using a version of the scale by Nho [60] originally developed by Hovey & King [61], which consisted of ten questions such as "I get stressed because of my limited Korean fluency." The first and tenth questions of acculturative stress were excluded from the analysis due to low factor loadings. This questionnaire was reconstructed into three separate factors by item parceling. The internal consistency (Cronbach's alpha) was good (0.86).

## 3.3. Statistical Analysis

Data in the first wave was found to display relatively stable variable characteristics for neglectful parenting and bilingual competence. As such, neglectful parenting and bilingual competence assessed in the first wave were predicted to have significant, long-term effects on the changes of ego-resilience. Researchers of the current study also anticipated that the trajectory of ego-resilience would verify a mediation effect between neglectful parenting, bilingual competence, and acculturative stress.

Individual growth and change can be more precisely understood through longitudinal analyses, and the Latent Growth Modeling offers the advantage of examining such developmental changes over time [62]. LGM reveals intra-individual changes by deriving the average value of growth factors for initial values and the rate of change in longitudinal data analysis, and offers the advantage of identifying statistically significant inter-individual differences through the variance of growth factors [63]. This method of analysis is considered to be more sophisticated in that it permits measurement errors and is able to evaluate the effects of several factors simultaneously [64].

Structural equation modeling (SEM)-based LGM allows researchers to investigate chronological relationships, which was previously difficult to achieve when utilizing the cross-sectional analysis. With the support of AMOS 20.0, the LGM technique was applied in this study to examine the developmental changes of ego-resilience over time. SEM-based LGM modeling was used to verify possible causal relationships between the trajectory of ego-resilience and the established protective and risk factors on acculturative stress experienced by multicultural adolescents.

Descriptive analysis was conducted using SPSS 22.0 to identify the characteristics and correlations of the variables. The  $\chi^2$  value, RMSEA (Root Mean Square Error of Approximation), TLI (Tucker-Lewis Index), and CFI (Comparative Fit Index) were used to determine the goodness of fit. TLI and CFI were based on  $\chi^2$  statistic and a comparison of the null model and the hypothesized model [64]. RMSEA, TLI, CFI are not sensitively affected by sample size; RMSEA and TLI also consider the simplicity of the model [65]. A model is considered to have a good fit when the RMSEA is 0.05 or less and when the TLI and CFI values are 0.90 or higher. Missing values were estimated with the Full Information Maximum Likelihood (FIML) approach for model estimation.

## 4. Results

### 4.1. Developmental Trajectories of Ego-resilience

Descriptive statistical analysis and LGM analysis were conducted to understand the developmental trajectory of multicultural adolescents. T-test and multiple group analysis on LGM was conducted to examine possible gender differences in the developmental trajectories.

Table 1 provides the mean, standard deviation, and t-score of multicultural adolescents' ego-resilience measured from the first through fifth waves. Significant differences between the gender groups was found on Ego-resilience T3 ( $t = 2.57, p < 0.05$ ), Ego-resilience T4 ( $t = 2.38, p < 0.05$ ), and Ego-resilience T5 ( $t = 2.34, p < 0.05$ ), where male adolescents showed higher levels of ego-resilience than female adolescents.

**Table 1.** Gender differences in ego-resilience.

Variables	Male			Female			t
	N	M	SD	N	M	SD	
1. Ego-resilience T1	681	2.88	0.48	711	2.92	0.46	−1.64
2. Ego-resilience T2	673	2.94	0.47	703	2.96	0.46	−0.52
3. Ego-resilience T3	676	3.05	0.46	706	2.99	0.44	2.57 *
4. Ego-resilience T4	649	3.09	0.48	678	3.03	0.45	2.38 *
5. Ego-resilience T5	638	3.09	0.46	660	3.03	0.45	2.34 *

\*  $p < 0.05$ .

The model shape of the developmental changes for ego-resilience was determined by comparing the three models: no-growth, linear growth, and quadratic growth models. As shown in Table 2, the quadratic model of ego-resilience provided the best fit to the data. The quadratic model's TLI and CFI value is close to 1.0 and the RMSEA value is less than 0.05, indicating a good model fit.

**Table 2.** Model fit indices for latent growth models of ego-resilience on multicultural adolescents.

Model	Growth Factor: Mean	$\chi^2$	df	p	TLI	CFI	RMSEA (90% CI)
No-growth	Intercept: 3.002 ***	276.730	13	0.000	0.786	0.815	0.121 (0.109–0.133)
Linear	Intercept: 2.914 ***	53.875	10	0.000	0.954	0.969	0.056 (0.042–0.071)
growth	Slope: 0.042 ***						
Quadratic	Intercept: 2.893 *** Slope: 0.085 *** Quadratic slope: −0.011 ***	14.032	6	0.029	0.986	0.994	0.031 (0.009–0.053)

\*\*\*  $p < 0.001$ .

In Table 3, ego-resilience had a significant positive slope mean coefficient (0.085,  $p < 0.001$ ) and a significant negative quadratic mean coefficient (−0.011,  $p < 0.001$ ), suggesting an increasing curvature over time. Although each wave exhibited a difference in the gap of increase, results suggest an overall gradual increase of ego-resilience as adolescents advance from fourth to eighth grade. The variances of intercept (0.110,  $p < 0.001$ ), slope (0.040,  $p < 0.001$ ), and quadratic slope (0.002,  $p < 0.001$ ) were significant, suggesting meaningful individual differences in the developmental trajectory of ego-resilience. In reference to the correlation between growth factors, as the intercept increased, the slope decreased ( $r = -0.396$ ,  $p < 0.05$ ), and a higher slope yielded a faster decrease range ( $r = -0.908$ ,  $p < 0.001$ ).



**Table 3.** Estimation of LGM of ego-resilience of multicultural adolescents: Quadratic model.

	Intercept	Slope	Quadratic Slope
<b>Mean</b>	2.893 ***	0.085 ***	−0.011 ***
<b>Variance</b>	0.110 ***	0.040 ***	0.002 ***
<b>Covariance (Correlation)</b>	Intercept ↔ Slope = −0.026 (−0.396) * Slope ↔ Quadratic Slope = −0.009 (−0.908) *** Intercept ↔ Quadratic Slope = 0.004 (0.249)		

\*  $p < 0.05$ , \*\*\*  $p < 0.001$ .

Multiple group analysis was conducted according to gender to examine possible gender differences of ego-resilience in the latent growth model. The subject sample of the quadratic model, which was selected for model fit comparison, was divided into male and female groups to examine the model fit of the multiple group model. The baseline model showed  $\chi^2 = 21.807$  ( $df = 12$ ,  $p < 0.05$ ), TLI = 0.998, CFI = 0.999, RMSEA = 0.009, and the model appeared to fit the data adequately. Table 4 presents the predicted values of the baseline model for the developmental trajectories of ego-resilience for both genders. For males, the estimated mean of the intercept (2.865,  $p < 0.001$ ), slope (0.051,  $p < 0.001$ ), and quadratic slope (−0.016,  $p < 0.001$ ) of ego-resilience were all statistically significant. Results indicated that although ego-resilience increased with time, the quadratic curvature gradually leveled off. Variance of the intercept was also significant, revealing individual differences in the developmental trajectories of ego-resilience among fourth grade males. For females, the estimated mean of the intercept (2.917,  $p < 0.001$ ) and the slope (0.051,  $p < 0.001$ ) were statistically significant, indicating a linear increase of female group's ego-resilience. Variance of the intercept and slope were also significant, revealing individual differences in the developmental trajectories of ego-resilience over time. The test of configural invariance verified that the intercept of male group was higher, while the female group had a greater slope. However, a test of scalar invariance was also conducted because these differences were not statistically significant.

**Table 4.** Estimation of LGM of ego-resilience of multicultural adolescents according to gender.

Parameters		Male	Female
<b>Mean (SE)</b>	Intercept	2.865(0.018) ***	2.917(0.017) ***
	Slope	0.122(0.016) ***	0.051(0.015) ***
	Quadratic Slope	−0.016(0.004) ***	−0.006(0.004)
<b>Variance (SE)</b>	Intercept	0.081(0.018) ***	0.135(0.017) ***
	Slope	0.022(0.015)	0.053(0.014) ***
	Quadratic Slope	0.002(0.001) *	0.003(0.001) ***
<b>Covariance (SE)</b>	Intercept ↔ Slope	−0.003(0.015)	−0.045(0.014) **
	Slope ↔ Quadratic Slope	−0.006(0.003)	−0.011(0.003) ***
	Intercept ↔ Quadratic Slope	0.000(0.003)	0.007(0.003) *

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

As shown in Table 5, model invariance test was conducted to examine whether the estimated means (intercept, slope) differed significantly by gender. Because of the nested relationship between the two models, a chi-square difference test was used for model comparison. For verification, significant differences of  $\chi^2$  between the models were analyzed to compare the baseline model with the scalar invariance model, which constrained the mean of intercept and slope in the same way between both groups. As a result of the  $\chi^2$  difference test, the null hypothesis suggesting that the two models were identical was rejected, ultimately confirming that the two models were significantly different (CV:  $0.95\chi^2_2 = 5.99$ ). To determine whether the difference was due to the intercept or slope, a Posthoc test was conducted by constraining the intercept and slope, respectively. In considering the comparison between the baseline model and the constrained model of the intercept versus the comparison between

the baseline model and the constrained model of the mean slope, the  $\chi^2$  difference tests between both baseline models were also significant ( $CV: {}_{0.95}\chi^2_1 = 3.84$ ). These results indicated that the intercept of ego-resilience for the male group was significantly higher, while the female group revealed a significantly higher slope of ego-resilience. Thus, values indicated a relatively rapid increase in ego-resilience because of the lower intercept for males, while the increase of ego-resilience seemed to be relatively slower in females due to the higher intercept.

**Table 5.** Fit statistics for tests of invariance.

Model	$\chi^2$	df	p	TLI	CFI	RMSEA (90% CI)	$\Delta\chi^2$	$\Delta df$
Configural invariance (Baseline)	21.807	12	0.040	0.983	0.993	0.024 (0.005–0.040)		
Scalar invariance	31.906	14	0.004	0.973	0.987	0.030 (0.016–0.044)	10.099	2
Posthoc test (Intercept)	26.311	13	0.015	0.979	0.991	0.027 (0.011–0.042)	4.504	1
Posthoc test (Slope)	31.758	13	0.003	0.970	0.987	0.032 (0.018–0.047)	9.951	1

#### 4.2. The Structural Relationship among Trajectories of Ego-resilience, Neglectful Parenting, Bilingual Competency, and Acculturative Stress of Multicultural Adolescents

Prior to confirming the structural relationship between the variables of this study, descriptive statistical analysis and correlation analysis were conducted. Table 6 presents the correlation and descriptive statistics for all study variables. The correlation between ego-resilience measured from the first through fifth waves and neglectful parenting were negative, but bilingual competence and ego-resilience showed positive correlations. The correlation between acculturative stress and ego-resilience measured from the first through fifth waves were negative. The correlation between acculturative stress and neglectful parenting was positive, but the correlation between acculturative stress and bilingual competence was negative.

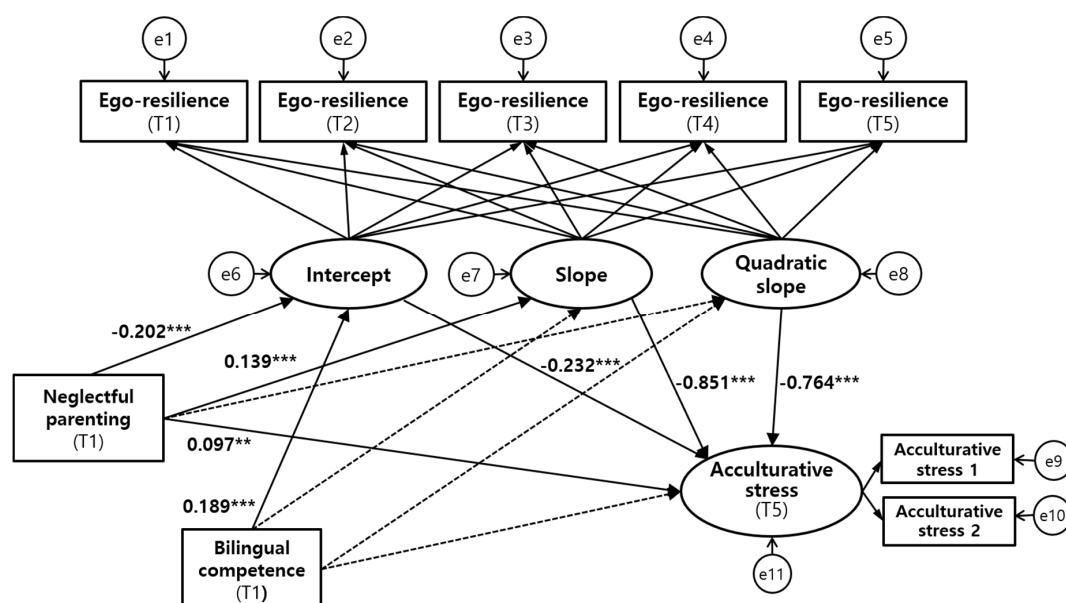
**Table 6.** Correlation with measurement variables and descriptive statistics.

Variables	1	2	3	4	5	6	7	8
1. Ego-resilience T1	1							
2. Ego-resilience T2	0.42 ***	1						
3. Ego-resilience T3	0.32 ***	0.41 ***	1					
4. Ego-resilience T4	0.34 ***	0.39 ***	0.45 ***	1				
5. Ego-resilience T5	0.32 ***	0.31 ***	0.40 ***	0.50 ***	1			
6. Parent's neglecting attitude T1	−0.14 ***	−0.09 **	−0.08 **	−0.05	−0.08 **	1		
7. Bilingual competence T1	0.14 ***	0.15 ***	0.12 ***	0.12 ***	0.08 **	0.02	1	
8. Acculturative stress T5	−0.07 *	−0.08 **	−0.14 ***	−0.17 ***	−0.24 ***	0.08 **	−0.06 *	1
M	2.90	2.95	3.02	3.06	3.06	1.76	2.22	1.21
SD	0.47	0.47	0.45	0.47	0.46	0.61	0.97	0.36
Skew	0.05	0.10	0.20	0.24	0.27	0.86	0.45	1.87
Kurtosis	0.66	0.77	0.22	−0.05	0.07	1.16	−0.83	2.88

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

An examination of the first through fifth waves showed a general upward trend for ego-resilience. As reported in Table 6, no measure of the variables exceeded skewness of  $\pm 2$  and kurtosis of  $\pm 7$ . Therefore, the normal theory maximum likelihood was applied in the latent growth analyses [66].

As shown in Figure 2, the hypothesized mediation model was tested to establish the mediating effects of the first through fifth wave ego-resilience of adolescents between first wave variables (neglectful parenting, bilingual competence) and fifth wave acculturative stress. As reported in Table 7, the model appeared to fit the data adequately using the maximum likelihood estimation,  $\chi^2 = 19.827$  ( $df = 18$ , n.s.), TLI = 0.998, CFI = 0.999, RMSEA = 0.009. That is, the developmental trajectory of ego-resilience, the first wave variables (neglectful parenting, bilingual competence) and the fifth wave acculturative stress have a causal relationship.



**Figure 2.** Influence of neglectful parenting, bilingual competence, and the developmental trajectory of ego-resilience on acculturative stress of multicultural adolescents. Note. Significant effects shown as standardized regression coefficients ( $\beta$ ). \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table 7.** Model fit indices for SEM on the influence of acculturative stress.

Model	$\chi^2$	$df$	$p$	TLI	CFI	RMSEA (90% CI)
SEM	19.827	18	0.343	0.998	0.999	0.009 (0.000–0.026)

The influence of each variable is shown in Table 8. Neglectful parenting, assessed in the first wave had significant effects on (1) the intercept and slope of ego-resilience trajectories, and (2) the fifth wave acculturative stress scores. Specifically, neglectful parenting was significantly related to the intercept ( $\beta = -0.202$ ,  $p < 0.001$ ) and slope ( $\beta = 0.139$ ,  $p < 0.001$ ) of the ego-resilience trajectory, and acculturative stress ( $\beta = 0.097$ ,  $p < 0.01$ ). Results suggest that adolescents who reported higher parental neglect (i.e., stronger perception of parents' low level of interest in adolescents' daily lives) exhibited lower scores in the trajectory of ego-resilience and higher scores in acculturative stress.

Interestingly, the effects of bilingual competence were found to be significant only on the intercept of ego-resilience ( $\beta = 0.189$ ,  $p < 0.001$ ). The more adolescents perceived themselves as proficient in their mother's native language, baseline scores (i.e., intercept) for ego-resilience were significantly higher. Meanwhile, no significant effects were found on the slope and quadratic slope of ego-resilience and acculturative stress scores in the fifth wave.

The intercept, slope, and quadratic slope of adolescents' ego-resilience showed significant effects on the fifth wave acculturative stress. In other words, the trajectory of ego-resilience had significant effects on the level of acculturative stress in the fifth wave. These results suggest that an adolescent

who initially reports a high baseline value of ego-resilience may perceive lower levels of acculturative stress as ego-resilience gradually increases over time.

**Table 8.** Parameter estimates in the structural model.

Path	<i>B</i>	<i>SE</i>	$\beta$
Effect on intercept			
Parent's neglecting attitude	−0.110 ***	0.020	−0.202
Bilingual competence	0.065 ***	0.012	0.189
Effect on linear slope			
Parent's neglecting attitude	0.045 *	0.018	0.139
Bilingual competence	0.004	0.012	0.019
Effect on quadratic slope			
Parent's neglecting attitude	−0.008	0.004	−0.103
Bilingual competence	−0.003	0.003	−0.057
Effect on acculturative stress			
Intercept	−0.219 ***	0.043	−0.232
Slope	−1.340 ***	0.230	−0.851
Quadratic slope	−5.041 ***	0.959	−0.764
Parent's neglecting attitude	0.050 **	0.018	0.097
Bilingual competence	−0.019	0.011	−0.058
Parameter			
Ego-resilience intercept	2.943 ***	0.046	
Ego-resilience slope	−0.003	0.067	
Ego-resilience quadratic slope	0.010	0.010	

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Adolescents who reported high levels of neglectful parenting were also more likely to report higher acculturative stress in the fifth wave. Neglectful parenting scores in the first wave had direct effects on fifth wave acculturative stress and indirect effects on acculturative stress throughout the trajectories of ego-resilience. Also, first wave bilingual competency scores had indirect effects on the fifth wave acculturative stress through the baseline value of ego-resilience. Specifically, a partial mediation of ego-resilience trajectories was found for the first wave neglectful parenting and fifth wave acculturative stress, and full mediation was found for the first wave bilingual competency and fifth wave acculturative stress.

## 5. Discussion

The developmental trajectory of ego-resilience was investigated in this domestic longitudinal research to identify potential implications for the promotion of social sustainability by means of the healthy development of multicultural adolescents. The dynamic of multicultural families was explored through the examination of parenting attitudes and language competency to unveil new grounds of strategic development in facilitating sustainable parenting environments. Accordingly, the present study examined the Multicultural Adolescents Panel Study (MAPS), a large scale nationwide longitudinal dataset in South Korea, to estimate the developmental trajectory of ego-resilience and analyze the path of influence for neglectful parenting and bilingual competence on acculturative stress experienced by multicultural adolescents.

Data analysis revealed that as multicultural adolescents developed, their ego-resilience also increased. The developmental trajectory of ego-resilience was evaluated by using the quadratic model of LGM, revealing that the level of ego-resilience increased rapidly from fourth to seventh grade, and increased gradually at eighth grade. These results are consistent with the findings of a study using longitudinal data examining the increase of ego-resilience among multicultural youths between grades 4 through 7 [67]. However, a study on adolescents who were not raised in multicultural families reported contradictory results, claiming no significant difference of ego-resilience between grades 4

through 7 [68,69]. Rather, as their grades progressed, ego-resilience was reported to diminish [70]. In the current study, an increase of ego-resilience was identified among multicultural adolescents from mid-childhood, suggesting that the developmental trajectories of ego-resilience of these youths are different from the general adolescent population. In addition, the lowest (i.e., weakest) levels of ego-resilience was seen in Grade 4, emphasizing the need of finding innovative ways to support and strengthen ego-resilience of multicultural youths during early adolescence.

Significant differences in the developmental trajectories of ego-resilience between gender groups were found in this study. In the male group, the baseline value of ego-resilience was low, but displayed a rapid, then gradual increase. In the female group, the baseline value of ego-resilience was relatively high, but slowly increased, resulting in an intersection of ego-resilience trajectory in Grade 6. With exception to certain differences in the concrete pattern, results of this study correspond with findings in previous longitudinal studies [9,10], which also reported differences in the developmental aspect of ego-resilience between males and females. That is, both male and female groups displayed an increase in ego-resilience, and the increase was greater in the male group. Results of this study are consistent with the results reported in previous longitudinal studies that found an increase in the ego-resilience among female adolescents [10]. In contrast, reports of stable ego-resilience throughout adolescence [9] and a decrease of ego-resilience among male adolescents [8] conflicted with the findings of the current study. As previously mentioned, differences of the developmental trajectories of ego-resilience have been found for multicultural youths within the context of the South Korean community. Thus, more research should be conducted to better understand the variance of ego-resilience among multicultural adolescents.

Neglectful parenting and bilingual competence of multicultural adolescents had a significant influence on the developmental trajectory of ego-resilience. The baseline value of ego-resilience was higher when adolescents perceived low levels of neglectful parenting and high proficiency in their mother's native language. Since positive parental attitudes and involvement are the most powerful factors in enhancing ego-resilience [13,34–36], awareness of the adverse impact of neglectful parenting is crucial in helping parents and adolescents adapt to their communities. Multicultural characteristics such as bilingual competency was also a significant variable in our study. The level of language competency, particularly in the mother's native language, affects not only the quality of communication between the mother and adolescent [40], but also strengthens the adolescent's ego-resilience. The results of these studies are consistent with previous research, which show that the positive acceptance of biculturalism and bilingual competency are the most influential factors of ego-resilience for multicultural adolescents [1]. These findings are particularly meaningful in that they provide empirical support for speculations in previous studies suggesting that fluency in the mother's native language enhances an adolescent's ego-resilience [43,44].

The mediating effects of ego-resilience for neglectful parenting and bilingual competency as perceived by multicultural adolescents on acculturative stress was confirmed. Partial mediation of ego-resilience was found for neglectful parenting on acculturative stress; full mediation of ego-resilience was found for bilingual competency. Hence, neglectful parenting and bilingual competency had positive and negative effects on adolescents' acculturative stress. Since ego-resilience is a significant variable that can impact factors such as the effects of parenting attitudes and bilingual competency, which conclusively affect the process of stress accumulation, more attention should be given to developing strategies of strengthening adolescents' ego-resilience for positive development and adaptation.

A possible limitation of this study is the necessity to examine supplementary variables that may have significant influences on the development of multicultural adolescents. There are multiple pathways and influential variables that may affect the developmental trajectory of ego-resilience, and subsequent examinations of internal/external characteristics, such as family interactions, would be beneficial in understanding the experiences of multicultural adolescents.

Despite these limitations, the current study is meaningful in that it offers insight regarding multicultural adolescents and their unique developmental trajectories. Although the number of

multicultural families continues to rise, research in limited in this area of study. The nationwide longitudinal panel data analysis offers noteworthy outcomes that may be useful in developing various intervention and prevention strategies for the positive psychosocial development of multicultural adolescents. The findings of this study also add to existing research on the resilience of multicultural youths as the mediating effects of ego-resilience, in reducing the negative impact of risk factors while strengthening the positive impact of protective factors, have been substantiated. On a broader scale, the healthy development of adolescents reaches far beyond one community or even one generation, as these youths play a critical role in promoting a sustainable future.

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