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THE MODERATION EFFECT OF GENDER IN THE RELATION BETWEEN  
PARENTAL ATTACHMENT AND HOPE IN CHINESE ADOLESCENTS

by

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## Abstract

Previous research has shown that parental attachment is a predictor of children's hope, and gender intensification theory proposed that parents had stronger effect on early adolescents with the same gender. This study examined the moderating role of Chinese parents' and adolescents' genders in the relation between parental attachment and hope. Data were collected from 745 middle school students ( $M = 12.77$ ,  $SD = 0.73$ , 51.1% males) in China. Both cross-sectional and longitudinal designs were applied. Results indicated that both paternal and maternal attachment significantly predicted hope cross-sectionally, but only maternal attachment significantly predicted hope after six months. Gender did not have significant moderating effect in any model. In addition, mothers' education levels had significant relation with hope both cross-sectionally and longitudinally. Implication and future directions were discussed.

## Table of Contents

Chapter		
Page		
1. Introduction		1
	Parental Attachment	2
	Hope	5
	The Relation between Parental Attachment and Hope	8
	Gender Differences in The Relation between Parental Attachment and Hope	9
	The Present Study	11
2. Method		12
	Participants	12
	Procedure	13
	Measures	13
3. Results		14
	Data Screening	14
	Preliminary Analyses	15
	Moderation Analyses	16
4. Discussion		16
	Strengths, Limitations and Future Directions	19
Reference		21
Appendix		36

## Introduction

With decades of cumulative research on parenting, parents have been universally recognized as having central influence on many aspects of children's development, including but not limited to "behaviors and attitudes that adolescents adopt across domains such as health, education, reproductive behaviors, social interactions, and problem behaviors (Hair, Moore, Garrett, Kinukawa, Lippman, & Michelson, 2003, p. 183). Bornstein's series of books *Handbook of Parenting* (Bornstein, 2002a, 2002b, 2002c, 2002d, 2002e) provides a summary of parenting studies, including parenting children at different stages (for review, see Bornstein, 2002a), biological and social ecological factors (for review, see Bornstein, 2002b), parents' impact in varying situations (for review, see Bornstein, 2002a, 2002c), parenting in different cultures (for review, see Bornstein, 2002d), and practical issues (for review, see Bornstein, 2002d, 2002e). Currently, main parenting variables that are commonly used in research include parenting style (e.g., authoritative, authoritarian and permissive styles, Baumrind, 1971, 2005), specific parenting practice such as parental discipline (for review, see Holden, Vittrup & Rosen, 2011), parent-child relationships and parental attachment (Bowlby, 1969, 1973, 1988; Ainsworth, 1967, 1978).

In this study, the key research questions are (1) how one of the most important indicators of parenting, parental attachment (maternal and paternal separately), predict one positive psychological strength, hope, in a large sample of Chinese early adolescents; and (2) if adolescent gender moderated the relations between parental attachment (maternal and paternal separately) and hope. The findings of the present study contributed to the positive youth development literature, which may also shed the light on the parenting practice, to promote

adolescent hope development, especially in the Chinese cultural context. A literature review of the theoretical foundations and relevant research findings follows.

## **Parental Attachment**

**Attachment Theory.** Attachment theory (Bowlby, 1969) provides a fundamental framework for understanding the origin and importance of the bond between parents and their child, especially at the very early stage of life. Based on this theory, children's early interactions with caregivers are believed to influence their later adaption through internal working model (Bowlby, 1973). Internal working model refers to a pattern or belief that individuals apply about the extent that they expect the attachment partners are responsible and caring, and the extent that they are worth care (Bowlby, 1973).

Bowlby (1973) indicated two dimensions of internal working models of attachment: "(a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; (b) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond in a helpful way (p. 204)". Empirically, three attachment styles are supported by solid experimental research (the "stranger situation" experiments, Ainsworth et al., 1967, 1978), including secure, anxious-ambivalent, and anxious-avoidant styles. Specifically, secure attachment described the phenomenon that infants use their caregivers as a secure base when strangers are present, and their distress is relieved when they have reunion with their caregivers. In contrast, infants with anxious-ambivalent attachment show much desire for proximity when their caregivers are not present, but are not relieved well when their caregivers return. In addition, infants who were classified as having anxious-avoidant attachment were observed to ignore their caregivers upon separation and reunion (Roisman & Groh, 2011). According to attachment theory, infants with

different types of attachment form different internal working models, which subsequently influence individuals' ability to develop proximity and many other aspects of future development (Bowlby, 1988). Specifically, researchers have found that individuals who had insecure attachment during infancy are more likely to have issues with psychological well-being later, such as in the areas of intimacy (Hazan & Shaver, 1987), distress (Kobak & Sceery, 1988), social support (Kobak & Sceery, 1988), and a trusting view of the social world (Collins & Read, 1990).

**Measures of Parental Attachment.** The most common way to assess attachment in infants and children is through observing how infants and children interact with their caregivers (McElhaney, Allen, Stephenson & Hare, 2009). For adolescents, common assessment methods of attachment include interview and self-report. Regarding the interview method, researchers typically use a semi-structured interview protocol and ask participants to answer verbally to the questions about their relationship with parents, with abstract depictions and concrete memories (George, Kaplan, & Main, 1996; Main & Goldwyn, 1998; Ward & Carlson, 1995). The interview approach includes flexible questions that meet researchers' needs; however, it is time consuming and requires high levels of training and practice of the interviewers. For the self-report approach, participants fill out a questionnaire to answer questions that aim to capture their patterns and/or characteristics of attachment (McElhaney, Allen, Stephenson & Hare, 2009). The self-report approach mostly contains pre-set questions, which are not changed during the data collection process, whereas this approach takes relatively less time and is easier to execute compared to the interview approach. Self-report was applied in this study to measure the strengths of parental attachment in adolescents.

**Parental Attachment During Adolescence.** As noted above, according to attachment theory (Bowlby, 1969), a healthy interaction with a primary caregiver during infancy is

important for building a sense of security and ensuring positive social and emotional development later on in a child. As a child grows older, parental attachment continues to be very important though there are shifts in the levels of attachment, especially during adolescence. For example, researchers found that compared to children, adolescents reported reduced levels of reliance on parents as attachment figures (Allen & Land, 1999), are more likely to be dismissive of parental attachment (Ammaniti, Van Ijzendoorn, Speranza & Tambelli, 2000), and have the tendency to restrain their expression of attachment sentiments for those who have higher needs of autonomy (Scharf, 2001; Scharf, Mayseless, & Kivenson-Baron, 2004). Although in general “perception of parents as the primary sources of support declines” during adolescence (Scharf & Mayseless, 2007, p.5), relationships with parents still contain commitment, emotional investment, and stability. For example, parental attachment was found to be negatively associated with adolescents’ delinquency (Bao, Zhang, Lai, Sun & Wang, 2015), overall distress (Kumar & Mattanah, 2016), and depression (Pan, Zhang, Liu, Ran, & Teng, 2016). Also, positive associations were found between parental attachment and academic motivation (Duchesne & Larose, 2007), self-esteem (Pan, et al., 2016), life satisfaction (Jiang, Huebner, & Hills, 2013; Pan, et al., 2016), and prosocial behavior (Thompson & Gullone, 2008).

In summary, research evidence has supported that close relationships with parents maintains the significance in adolescent behavioral and emotional development, especially in the reduction of problematic behaviors and psychopathology. However, how parental attachment influences the development of positive psychological strengths in adolescence is less known. To advance the literature in this area, this study focuses on the relations between parental attachment and one positive psychological strength in youth, hope, with gender as a potential moderator.

Hope theory, the importance of hope, and its relation with attachment are illustrated in the next section.

## **Hope**

**Hope Theory.** According to Snyder's hope theory (2002), hope contains three key elements: goals, pathways, and agency. Specifically, behaviors are directed by goals, which provide the target of actions. According to Snyder (2002), there are two types of goals. The first one is a "positive" or "approaching" goal, which may "be envisioned for a first time; and pertain to the sustaining of a present goal or represent the desire to further a positive goal wherein one already has made progress" (p. 250). The other one is a "negative" goal, which is aimed at stopping or delaying something from happening. Pathways and agency are two ways of thoughts through the process of generating hope. He further stated that "hope is a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals)" (Snyder, p. 250). Pathways thinking refers to the process of considering routes to pursue goals, and agency thinking refers to the process of considering "the perceived capacity to use one's pathways to reach desired goals" (p. 251). Pathways and agency thinking are two different processes, but they have influence on each other. Based on this theory, Snyder and colleagues developed and validated the State Hope Scale for adults (Snyder, 1996) and Children's Hope Scale for children and adolescents (Snyder, Cheavens, & Sympson, 1997). Previous research shows that hope is usually assessed in terms of measuring the general level by self-report (Ey et al., 2005). For example, Snyder's Children's Hope Scale (Snyder, Cheavens, & Sympson, 1997) contains three agency items and three pathway items, and it is reported by a total score.

**Hope in Adolescence.** The importance of hope in adolescence has been documented in research literature, though research on adolescent hope is still at its early stage (for a review, see Jiang, Otis, Weber & Huebner, 2017). Adolescence involves developmental changes at different levels, including cognitive and motivational changes. For cognitive changes, adolescents start to gain more cognitive skills compared to children, for instance, building more abstract and integrated self-concepts and using more sophisticated perspective-taking strategies (Montemayor & Flannery, 1990). However, adolescents also tend to weigh short-term consequences more than long-term consequences (Gardner & Herman, 1991), and they are also more likely to engage in risky activities (Beyth-Marom, Austin, Fishhoff, Palmgren, & Quadrel, 1993). Regarding motivation, adolescence is often characterized as a developmental stage that is associated with decreased interest in school, intrinsic motivation to learn, and valuing of school achievement (Eccles et al., 1989; Harter, 1981, 2012; Wigfield, Eccles, Iver, Reuman, Midgley, 1991), and self-perceptions of competence (Anderman & Maehr, 1994; Eccles et al., 1989, Harter, 2012). Researchers also reported that adolescents have more test anxiety and learned helplessness responses to failure (Hill, 1980; Rholes, Blackwell, Jordan, & Walters, 1980).

Research findings of age differences in hope are mixed. Venning and colleagues (2009) reported that level of hope increased as children grew. However, Otis, Huebner, and Hills (2016) found that though students in Grade 7 and 8 did not have significant difference in hope, their level of hope was lower than students in Grade 6. Research has shown inconsistent findings about gender difference in hope. For instance, Venning and colleagues (2009) reported that male adolescents had significant high level of hope than female adolescents, whereas Hendricks-Ferguson (2006) found that female adolescents reported higher level of hope than male adolescents. In general, if hope differs across gender during adolescence is still unclear.

Considering the challenges and risks associated with adolescence, hope may be a strong protective factor to counter these possible negative changes. As Jiang, Otis, Weber and Huebner (2017) noted, as a goal-oriented strength, a high level of hope may help adolescents set more positive goals. For adolescents with stronger agency thinking, they are more likely to regard stressors as challenges instead of threats, and therefore may more likely have stronger motivation to tackle these stressors and be more resistant to declines in motivation. In addition, if they have better pathways thinking, they may more likely find effective methods to solve problems rather than “acting impulsively, particularly under risky or stressful situations” (Jiang, Otis, Weber, & Huebner, 2017, p.8).

Research has shown that hope is related to a wide range of indicators of adolescent development, such as academic achievement, adjustment, and psychological well-being. For example, students in high school and college who have higher levels of hope were found to have better academic performances (Snyder, 2002). Also, higher hope was related to better psychological adjustment (Cramer & Dyrkacz, 1998; Snyder et al., 1991; Snyder et al., 1996). In addition, hope has positive correlations with perceived competence and self-esteem, and negative correlations with symptoms of depression (Snyder, Lopez, Shorey, Rand, & Feldman, 2003).

Besides intrapersonal factors, some researchers also examined how contextual factors, especially social support, related to hope in adolescents. For example, social support was found to be one of significant predictors of hope (for review, see Yarcheski & Mahon, 2016), and positively associated with hope for Chinese adolescents (Ling, Huebner, Liu, Liu, Zhang, & Xiao, 2015). Therefore, in the context of present research, as parental attachment is a fundamental predictor of individual’s well-being, exploring its relation with hope seemed to be a logical step.

## **The Relation between Parental Attachment and Hope**

Parents are certainly one of the most important social support sources for adolescents, and previous studies have supported the significant relations of parental attachment and hope. According to Snyder (1994, 2002), parental attachment played a crucial role in building goal-directed thought, and having a secure attachment helped children think in a more hopeful way. In a meta-analysis study, by using three types of attachment, namely, secure, anxious and avoidant attachment, researchers found that secure attachment had a strong, positive correlation with hope, whereas anxious and avoidant attachment had a modest, negative correlation with hope (Blake & Norton, 2014). In studies that measured levels of attachment on a continuum (i.e., from insecure to secure attachment), evidence consistently showed the positive association between secure attachment and hope in adults (e.g., Simmons, Gooty, Nelson & Little, 2009), college students (Shorey, Snyder, Yang, & Lewin, 2003), and adolescents (e.g., Jiang, Huebner, & Hills, 2013; Otis, Huebner & Hills, 2016).

Overall, these findings suggest that secure attachment is associated with a higher level of hope. Importantly, however, most studies did not differentiate paternal and maternal attachment or the gender of children, and mostly applied the cross-sectional design, which limited the scope and the generalizability of the conclusions. To address these gaps in research, this study examined the potential moderation effect of gender in the relations between mother and father attachment, respectively, and hope in adolescents. Evidence that suggested gender (either parent or child, or both) may play a role in the relations between parental attachment and hope was reviewed in the next section.

## **Gender Differences in The Relation between Parental Attachment and Hope**

**Gender Intensification Theory.** Considerable research has been conducted on gender development, and most research involves children's conceptions about gender and stereotypes about their interest and behaviors related to gender during late childhood and early adolescence (Galambos, Berenbaum, & McHale, 2009). Based on the pattern of gender development suggested by empirical findings, Galambos and colleagues (2009) concluded that "gender differences in parent-offspring relationships should become pronounced at puberty, with parents taking on increased responsibility for socializing same-sex offspring, and adolescents collaborating in this process as they identify with the gendered characteristics, interests, and activities of a same-sex parent" (p. 316). This theory is referred to as *gender intensification*. For instance, research showed that children spent more time with the same-gender parent from about 10 years of age to about 12 years of age, although it occurred only when they had younger siblings of the opposite gender (Crouter, Manke, & McHale, 1995). These researchers argued that the occurrence of younger siblings with the opposite gender provided parents an opportunity to bring complementary and gender-typed influence. In addition, in families with both boys and girls, parents and children with the same gender were reported to have stronger warmth from middle childhood through middle adolescence compared to the opposite gender (Shanahan, McHale, Crouter, & Osgood, 2007). In general, empirical studies supported that parents and children with the same gender have more interactions with each other during children's early adolescent years, although some studies revealed different patterns. For example, Laursen, Coy, and Collins (1998) found that conflicts between mother and children declined more than did fathers during early adolescence, and only conflicts between fathers and early adolescents had significant increases in the intensity of emotion.

**Parental Attachment and Mental Health Outcome in Adolescents.** In the research area of relations between parental attachment and adolescent or young adult's mental health, the gender intensification theory has been supported. For instance, Pan and colleagues (2016) reported that compared to maternal attachment, paternal attachment had a stronger effect on depressive symptoms of Chinese early adolescents, and such relation was only significant in males. In another study with a sample of Chinese adolescents (including early, middle, and late adolescents), Song and colleagues (2009) found that only maternal attachment was significantly associated with Chinese adolescents' self-evaluation (assessed by subscales of self-liking and self-competence) for females only (Song, Thompson, and Ferrer, 2009). However, in a study with a sample of American undergraduate students, Jia and Jia (2016) reported that one pattern of attachment (i.e., maternal attachment anxiety) was predictive for males only, whereas paternal attachment anxiety was predictive for females only. Relatedly, in another study that used a sample of Chinese college students, researchers found that in comparison to maternal attachment, paternal attachment had larger correlations with children's cognitive empathy, and the relation was stronger in females than males (Yu, Wang & Liu, 2012).

The inconsistent support for gender intensification theory above revealed a pattern based on the developmental stages of the offspring in the studies. Specifically, it seems for younger adolescents, parental attachment has stronger associations with psychological outcomes for same-gender children. In contrast, for late adolescents and young adults (e.g., college students), the associations between parental attachment and psychological development are stronger for adolescents and young adults with parents with the opposite gender. Nevertheless, it is likely that parental attachment and maternal attachment have differential effects on certain psychological outcomes in adolescents, and such differences may relate to adolescent children's gender.

Clearly, more investigations are needed to further understand the role of gender in the relations between parental attachment and adolescents' psychological development, including the development of hope.

### **The Present Study**

The significant role of parental attachment in predicting hope has been indicated in previous research. However, few studies differentiated the gender of parents and the gender of children in the investigations. The present study aimed to examine the potential moderation effect of children's gender in the relations between parental attachment (maternal and paternal attachment separately) and adolescent hope in a large sample of Chinese early adolescents. The cross-sectional design was used to compare results of the present study with previous findings, and the longitudinal design was included in order to further investigate the relation among major variables over time. The specific research questions are:

1. Whether gender of adolescents moderates the relation between paternal attachment and hope, and between maternal attachment and hope cross-sectionally?
2. Whether gender of adolescents moderates the relation between paternal attachment and hope, and between maternal attachment and hope longitudinally?

The conceptual models are presented in Figure 1 to 4. Based on relevant theories and previous empirical findings, it was hypothesized that (1) both paternal and maternal attachment significantly predict hope both cross-sectionally and longitudinally; (2) paternal attachment has a stronger impact on hope in male adolescents both cross-sectionally and longitudinally, and (3) maternal attachment has a stronger impact on hope in female adolescents both cross-sectionally and longitudinally.

## Method

### Participants

The participants were students in grades 6 to 8 at a middle school in a city in Northern China. The total sample size was 745; 51.1% of the sample were male students. The sample was comprised of 265 students in grade 6, 263 students in grade 7, and 217 students in grade 8. The age range was from 11 to 15 years old ( $M = 12.77$ ,  $SD = 0.73$ ). The average income per capita Gross Domestic Product (GDP) of this city was 33345 Yuan (5,354 U.S. dollars) in 2015, which was below the national per capita GDP (7,990 U.S. dollars in 2015; International Monetary Fund, 2016). In the present study, two parents' education levels were used to estimate social economic status, including without high school diploma (fathers:  $n = 349$ ; mothers:  $n = 388$ ), and with high school diploma or college degree (fathers:  $n = 319$ ; mothers:  $n = 285$ ).

Attrition analyses were conducted before major analyses. Chi-Square tests indicated that three age groups (11, 14, and 15 years old) at Time 1 ( $p < .01$ ), being male ( $p < .01$ ), having parents with lower education level (fathers,  $p < .01$ ; mothers,  $p < .05$ ) were significantly more likely to drop out at Time 2. T-tests showed that there were significant differences in paternal attachment ( $p = .01$ ) and hope at Time 1 ( $p = .03$ ) between participants absent and present at Time 2. Results from logistic regression analysis showed that gender ( $p < .01$ ) and fathers' education levels ( $p = .01$ ) significantly predicted participants' status at Time 2 (i.e., retained or withdrew,  $p < .01$ , overall percentage = 78.9). These results suggested that participants were not missing at random, though the exact reason of attrition is unknown. To reduce the possible bias due to attrition, age, parental education levels, and baseline hope are controlled in the main analyses. Expectation-maximization algorithm (Dempster, Laird & Rubin, 1977) was used to handle missing data.

## **Procedure**

This study used an archival dataset which were collected as part of a longitudinal research project that examined well-being in Chinese early adolescents. This project was led by Dr. Xu Jiang and the data were collected by her collaborator, Dr. Ru-de Liu, in China. The ethics committees at Dr. Liu's university approved this project and consent was obtained by the principal, head-master, and homeroom teacher at the middle school. After that, researchers gave parents passive consent forms which informed them of the voluntary nature of participation. The homeroom teachers were briefed about the purpose of the study, content of the scales, and potential outcomes prior to the administration. Next, homeroom teachers administered survey packets to students whose parents permitted their children's participation. Students also signed on student assent forms. The homeroom teachers gave a brief introduction of this research and claim of confidentiality. All students attended this study voluntarily. Several measures were administrated again after 6 months. Homeroom teachers matched the same participants' responses across two times, and the identifiable information was removed afterwards.

## **Measures**

**The Inventory of Parent and Peer Attachment** (IPPA; Armsden & Greenberg, 1987) was used to measure attachment. It contained three subscales, including paternal attachment, maternal attachment and peer attachment, with 25 items in each subscale. Each scale uses the format of a 5-point Likert scale ranging from 1 (almost never or never true) to 5 (almost always or always true). IPPA showed good test-retest reliability and internal consistency (Armsden, & Greenberg, 1989), as well as good convergent validity (Armsden & Greenberg, 1987). IPPA was also translated into Chinese (IPPA-C; Zhang, Zhang, Zhang, Wang & Huang, 2011). IPPA-C had good internal consistent reliability, test-retest reliability, and validity (Zhang et al., 2011). The

Father and Mother Attachment scales in IPPA-C were measured at Time 1 only and used in the current study. In preliminary analysis two items were identified as problematic (Field, 2009), including Item 14 which had negative correlations with the subscale totals of both the paternal attachment subscale ( $r = -.24$ ) and the maternal attachment subscale ( $r = -.23$ ), and Item 9 which had low positive correlation with the subscale total of the paternal attachment subscale ( $r = .15$ ). Items 9 and 14 were deleted in both subscales in subsequent analyses. The alpha coefficients were .94 for the 23-item paternal attachment subscale and .93 for the 23-item maternal attachment subscale.

**Children's Hope Scale** (CHS; Snyder, Cheavens, & Sympson, 1997) was used to measure hope in adolescents. The CHS is a self-report scale measuring goal directed and hopeful thinking. The CHS was developed for children and adolescents from 8 to 16 years old. It has 6 items, using a 6-point Likert scale ranging from 1 (none of the time) to 6 (all of the time). The CHS showed good reliability and validity for both original scale (Valle, Huebner, & Suldo, 2004) and its Chinese version (Zhao & Sun, 2011). The alpha coefficients in this study were .86 at Time 1 and .91 at Time 2.

## **Results**

### **Data Screening**

All statistics analyses were conducted on IBM SPSS Statistics 24.0. Absolute values of skewness and kurtosis of all major variables were within 2, which indicated no significant deviation from normality (Boomsma & Hoogland, 2001; Muthen & Kaplan, 1985). Outliers were detected by Tukey's outlier labeling rule (Tukey, 1977). With this method, values out of the range of the first quartile of the distribution multiplied with 2.2 and the third quartile multiplied with 2.2 would be regarded as outliers (Hoaglin, & Iglewicz, 1987). Two participants were found

to have outlier responses in maternal attachment. However, their responses of other main variables were within the normal limits, therefore these participants were kept with scores of maternal attachment treated as missing. Eight participants did not report gender and they were list-wise deleted. Other missing data were handled by Expectation-maximization algorithm (Dempster, Laird & Rubin, 1977).

### **Preliminary Analyses**

Mean and standard deviation of paternal attachment ( $M = 3.88$ ,  $SD = 0.76$ ), maternal attachment ( $M = 3.98$ ,  $SD = 0.68$ ), hope at Time 1 ( $M = 4.51$ ,  $SD = 1.01$ ) and Time 2 ( $M = 4.49$ ,  $SD = 0.99$ ) were shown in Table 1. Means of major variables indicated that participants in the present study showed positive levels of parental attachment and hope.

Correlations among the main variables (Table 2) were positive and significant. According to Cohen's guidelines of interpreting effect size (1988), the strengths of all correlations were medium to strong. Particularly, correlations between paternal attachment and maternal attachment, and between hope at Time 1 and hope at Time 2 were strong.

T-tests and analysis of variance (ANOVA) were conducted to test possible mean differences in main variables across levels of key demographic variables (i.e., gender, age, parental education levels). Results indicated that females reported significant higher maternal attachment ( $p < .05$ ). Age group differences in maternal attachment were shown in ANOVA ( $p < .05$ ), but post-hoc analyses did not indicate significant mean differences between any pairs of age groups. Moreover, adolescents were found to have significantly higher scores in all major variables if the parental education level was higher in either their father (paternal attachment:  $p = .01$ ; maternal attachment:  $p < .01$ ; hope at Time 1:  $p = .01$ ; hope at Time 2:  $p = .06$ ) or mother

(paternal attachment:  $p < .01$ ; maternal attachment:  $p < .01$ ; hope at Time 1:  $p < .01$ ; hope at Time 2:  $p < .01$ ).

### **Moderation Analyses**

Four sets of multiple regression analyses were conducted using Model 1 of PROCESS (Hayes, 2018). The first two analyses were conducted to test the main effect of paternal and maternal attachment on hope at Time 1, respectively, and the moderating effect of adolescent gender in each of these relations. The last two analyses assessed how paternal and maternal attachment at Time 1 predicts hope at Time 2, controlling for hope at Time 1, and the moderating effect of adolescent gender in this relation over time<sup>1</sup>.

Outcomes of multiple regression analyses were shown in Table 3. Both paternal and maternal attachment had significant relation with hope at Time 1 ( $p < .01$ ); standardized regression coefficients ranged between 0.60 to 0.65. However, only maternal attachment significantly predicted hope at Time 2 ( $p < .01$ ), with standardized regression coefficients being 0.32. Gender was not found to have significant moderating effect across all the models, but mothers' education levels were found to be a robust predictor of hope at both Time 1 ( $p < .01$ ) and Time 2 ( $p < .05$ ), with standardized regression coefficients ranging from 0.10 to 0.30.

### **Discussion**

This study aimed to explore that whether gender moderated the relation between parental attachment (paternal and maternal attachment, respectively) and hope cross-sectionally and prospectively. The result indicated that both paternal and maternal attachment predicted hope cross-sectionally. In the longitudinal model, only maternal attachment significantly predicted

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<sup>1</sup> The results are reported in the text are based on the full sample. Supplemental analyses were conducted using Retained group and Withdraw group, separately, to test the same research questions. No major differences in outcomes of moderating effect were found across these groups (see Appendix A).

hope. Moderating effect of hope was not detected in neither cross-sectional nor longitudinal models. The major findings are discussed in more details below.

First, the significant relations between each parental attachment and hope found in this study were consistent with previous research. Specifically, the significant linkage between parental attachment and hope were reported in several studies (Blake & Norton, 2014; Jiang, Huebner, & Hills, 2013; Otis, Huebner & Hills, 2016). Second, the finding of a significant effect of maternal attachment, but not paternal attachment, on hope at Time 2, suggested that maternal attachment had stronger effect on hope than paternal attachment, at least in this sample. A supplemental analysis was conducted which showed that the mean level of participants' maternal attachment was significantly higher than the mean level of paternal attachment ( $t = 4.40, p < .01$ ) in this sample. Therefore, it is possible that mothers were the major caregivers and had more in-depth involvement in these families. which was supported by some previous studies (Lamb, 2000; Williams, & Kelly, 2005). In terms of the relation between attachment level and hope, the finding of the present study is not consistent with the result from another study, in which the researcher reported children who had higher paternal attachment reported higher hope (Al-Yagon, 2014). However, Al-Yagon's study only used cross-sectional design and the sample was primary school children in Israel (ages 8–12 years;  $M = 9.98, SD = 1.08$ ), which were quite different from the design and the sample of the present study. These methodological discrepancies might limit the comparison of conclusions across studies. It should be noted that longitudinal research on the relation between parental attachment and positive psychological strengths, such as hope, is sparse. More research is needed to clarify the possible differential effects of paternal and maternal attachment on hope in adolescents and children.

The finding of the insignificant moderating effect of gender in the present study did not support gender intensification theory. Based on gender intensification theory, the interaction between same gender parent and child is hypothesized to be intensified during pre-adolescence and early adolescence. Further, this intensified child-parent interaction is assumed to have stronger impact on the developmental outcomes in pre-adolescents and early adolescents. However, the findings were mixed from previous studies that applied gender intensification theory as the theoretical foundation. Specifically, some studies reported parents had more interaction with children with the same gender (e.g., Crouter, Manke, & McHale, 1995; Shanahan, McHale, Crouter, & Osgood, 2007), whereas others did not find the dependence on gender regarding significant difference in parents' impact on children (e.g., Song, Thompson, & Ferrer, 2009; Yu, Wang, & Liu, 2012). Further, for studies that reported significant differential effects of parenting-related variables and adolescent outcomes based on gender, the outcomes were limited to preventing psychopathological problems in adolescents (e.g., Pan et al., 2016; Jia & Jia, 2016). In the present study, however, the outcome variable is a positive psychological construct, which is related to, but also distinct from psychopathological constructs (Suldo & Shaffer, 2008). Specifically, research has shown that reducing or preventing psychopathology is not equivalent to improving psychological well-being (Suldo & Shaffer, 2008). This suggests that though differential effects of parenting depending on parent-child gender match may exist in contributing to adolescents' psychopathological problems, it seems not appropriate to directly generalize this conclusion to studies with positive well-being as the outcome. It is possible that same-gender parent-child interactions have more pronounced effects on reducing psychopathology during early adolescence, whereas how parents influence the development of positive psychological traits of adolescents is much less affected by same-gender parent-child

interactions. Clearly, more research is needed to evaluate how gender plays a role in the relation between parents' influence and children's positive psychological traits.

One additional but interesting finding is higher mothers' education levels consistently predicted higher hope. This is consistent with some previous studies that showed a significant positive relation between parental education levels and other psychological traits (e.g., resiliency, Prince-Embury, 2009), and cognitive abilities and academic performance (Buckhalt, El-Sheikh, Keller, & Kelly, 2009). The differentiation of mothers' and fathers' education level in this study also revealed that mothers' education levels appeared to more strongly associate with hope compared to fathers' education levels. This result appears to be consistent with the major finding that maternal attachment had stronger effect on adolescents' hope. Mothers' education levels may associate with other factors, such as parenting practice, which directly impact perceived attachment or parent-child relationships in adolescents. Future research is needed to further clarify the possible differential effects father and mother educational levels on positive psychological strengths in adolescents.

### **Strengths, Limitations and Future Directions**

The strengths of the study included the design (i.e., having both cross-sectional and longitudinal models), large sample size, and sampling in Eastern culture. However, several limitations also should be noted. First, self-report was the only method that was used during data collection. Future studies may consider using multiple methods to improve validity. For example, major variables may be reported by parents and teachers, and they may be assessed by interview. Second, the models built in this study might be over-simplified, especially with only one predictor at a time due to the model constraints when using PROCESS. Also, despite that covariates were identified and controlled, other confounding factors might be not included in this

dataset and overlooked in the analysis. For future studies, researchers are encouraged to examine other possible mediators and moderators that may future reveal the impact of parenting related variables on adolescent hope development. Third, only two data points with a 6-month interval might not be sensitive enough to detect the influence of parental attachment on hope during early adolescence. Future studies should consider the use of more data points with a longer interval.

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Table 1

*Descriptive Statistics of Attachment and Hope*

Variable	Mean	<i>SD</i>
Paternal attachment	3.88	0.76
Maternal attachment	3.98	0.68
Hope (Time 1)	4.51	1.01
Hope (Time 2)	4.49	0.99

Table 2  
*Correlations between Main Variables*

Variable	1	2	3	4
1. Paternal attachment				
2. Maternal attachment	.62**			
3. Hope (Time 1)	.49**	.49**		
4. Hope (Time 2)	.41**	.43**	.63**	

Significant level: \* $p < .05$ ; \*\* $p < .01$

Table 3  
*Multiple Regression Analyses*

The Relation Between Paternal Attachment and Hope at Time 1				The Relation Between Maternal Attachment and Hope at Time 1			
Predictors	Coefficient	SE	<i>p</i>	Predictors	Coefficient	SE	<i>p</i>
Paternal Attachment	0.61	0.13	<.01	Maternal attachment	0.63	0.15	<.01
Fathers' Education Levels	0.15	0.07	.03	Mothers' Education Levels	0.27	0.07	<.01
Gender	-0.19	0.34	.58	Gender	-0.31	0.39	.42
Age	0.02	0.04	.63	Age	0.03	0.04	.49
Interaction	0.02	0.09	.80	Interaction	0.04	0.10	.67
The Relation Between Paternal Attachment and Hope at Time 2				The Relation Between Maternal Attachment and Hope at Time 2			
Predictors	Coefficient	SE	<i>p</i>	Predictors	Coefficient	SE	<i>p</i>
Paternal attachment	0.07	0.12	.58	Maternal attachment	0.32	0.13	.02
Fathers' Education Levels	>-0.01	0.06	.95	Mothers' Education Levels	0.14	0.06	.02
Gender	-0.29	0.29	.32	Gender	0.21	0.34	.54
Age	-0.02	0.04	.68	Age	-0.01	0.04	.81
Interaction	0.07	0.07	.33	Interaction	-0.06	0.08	.47
Hope at Time 1	0.56	0.03	<.01	Hope at Time 1	0.54	0.03	<.01

Cross-sectional design:

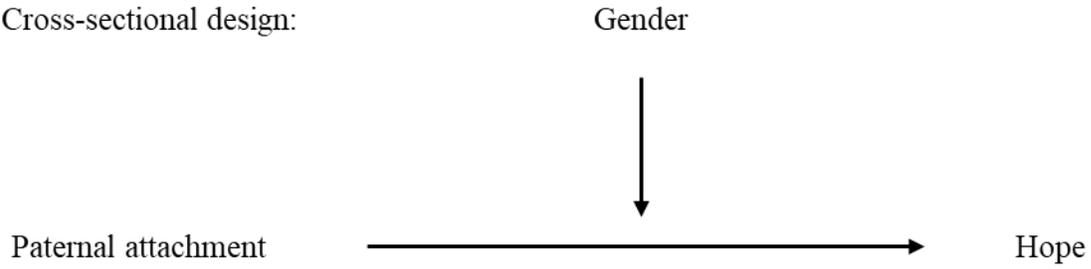


Figure 1. Conceptual Model 1

Cross-sectional design:

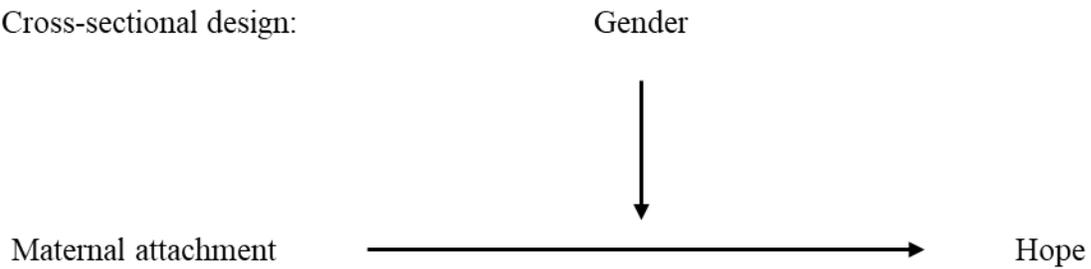


Figure 2. Conceptual Model 2

Longitudinal design:

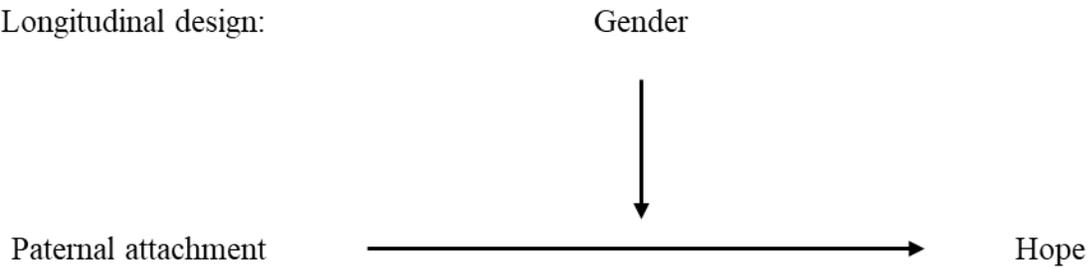
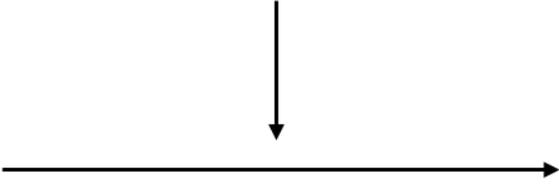


Figure 3. Conceptual Model 3

Longitudinal design:

Gender

Maternal attachment



Hope

Figure 4. Conceptual Model 4

## Appendix A

### *Multiple Regression Analyses separating participants absent and present at Time 2*

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The Relation Between Paternal Attachment and Hope at Time 1							
Absent at Time 2				Present at Time 2			
Predictors	Coefficient	SE	<i>p</i>	Predictors	Coefficient	SE	<i>p</i>
Paternal Attachment	0.68	0.33	.04	Paternal Attachment	0.70	0.17	<.01
Gender	-0.23	0.84	.78	Gender	0.20	0.44	.65
Interaction	-0.05	0.22	.82	Interaction	-0.05	0.11	.66
Age	-0.05	0.10	.59	Age	0.03	0.06	.60
Fathers' Education	-0.01	0.20	.96	Fathers' Education	0.16	0.08	.05
Levels				Levels			

---

The Relation Between Maternal Attachment and Hope at Time 1							
Absent at Time 2				Present at Time 2			
Predictors	Coefficient	SE	<i>p</i>	Predictors	Coefficient	SE	<i>p</i>
Maternal attachment	0.17	0.42	.69	Maternal Attachment	0.87	0.19	<.01
Gender	-1.61	1.30	.22	Gender	0.29	0.49	.56
Interaction	0.31	0.32	.35	Interaction	-0.09	0.12	.46
Age	-0.04	0.10	.66	Age	0.04	0.06	.56
Mothers' Education	0.52	0.20	.01	Mothers' Education	0.15	0.08	.07
Levels				Levels			

---

## **Appendix B**

### The Inventory of Parent and Peer Attachment (IPPA)

Assessment for maternal attachment:

Direction: Some of the following statements ask about your feelings about your MOTHER or the person who has acted as your mother. If you have more than one person acting as your mother (e.g. natural mother and a step-mother) answer the questions for the one that you feel has most influence on you.

Please respond to each of the items below by circling the ONE number that MOST CLOSELY tells how true the statement is for you.

Circle 1 if the statement is ALMOST NEVER TRUE OR NEVER TRUE for you

Circle 2 if the statement is NOT VERY OFTEN TRUE for you

Circle 3 if the statement is SOMETIMES TRUE for you

Circle 4 if the statement is OFTEN TRUE for you

Circle 5 if the statement is ALMOST ALWAYS OR ALWAYS TRUE for you

1. My mother respects my feelings.	1	2	3	4	5
2. I feel my mother does a good job as my mother.	1	2	3	4	5
3. I wish I had a different mother.	1	2	3	4	5
4. My mother accepts me as I am.	1	2	3	4	5
5. I like to get my mother's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use letting my feelings show around my mother.	1	2	3	4	5
7. My mother can tell when I am upset about something.	1	2	3	4	5
8. Talking over my problems with my mother makes me feel ashamed or foolish.	1	2	3	4	5
9. My mother expects too much from me.	1	2	3	4	5
10. I get upset easily around my mother.	1	2	3	4	5
11. I get upset a lot more than my mother knows about.	1	2	3	4	5
12. When we discuss things my mother cares about my point of view.	1	2	3	4	5
13. My mother trusts my judgment.	1	2	3	4	5
14. My mother has her own problems so I don't bother her with mine.	1	2	3	4	5
15. My mother helps me to understand myself better.	1	2	3	4	5
16. I tell my mother about my problems and troubles.	1	2	3	4	5
17. I feel angry with my mother.	1	2	3	4	5
18. I don't get much attention from my mother.	1	2	3	4	5
19. My mother helps me to talk about my difficulties.	1	2	3	4	5
20. My mother understands me.	1	2	3	4	5
21. When I am angry about something, my mother tries to be understanding.	1	2	3	4	5
22. I trust my mother.	1	2	3	4	5
23. My mother doesn't understand what I am going through these days.	1	2	3	4	5
24. I can count on my mother when I need to get something off of my chest.	1	2	3	4	5
25. If my mother knows something is bothering me, she asks me about it.	1	2	3	4	5

Assessment for paternal attachment:

Direction: Some of the following statements ask about your feelings about your FATHER or the person who has acted as your father. If you have more than one person acting as your father (e.g. natural father and a step-father) answer the questions for the one that you feel has most influence on you.

Please respond to each of the items below by circling the ONE number that MOST CLOSELY tells how true the statement is for you.

Circle 1 if the statement is ALMOST NEVER TRUE OR NEVER TRUE for you

Circle 2 if the statement is NOT VERY OFTEN TRUE for you

Circle 3 if the statement is SOMETIMES TRUE for you

Circle 4 if the statement is OFTEN TRUE for you

Circle 5 if the statement is ALMOST ALWAYS OR ALWAYS TRUE for you

1. My father respects my feelings.	1	2	3	4	5
2. I feel my father does a good job as my father.	1	2	3	4	5
3. I wish I had a different father.	1	2	3	4	5
4. My father accepts me as I am.	1	2	3	4	5
5. I like to get my father's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use letting my feelings show around my father.	1	2	3	4	5
7. My father can tell when I am upset about something.	1	2	3	4	5
8. Talking over my problems with my father makes me feel ashamed or foolish.	1	2	3	4	5
9. My father expects too much from me.	1	2	3	4	5
10. I get upset easily around my father.	1	2	3	4	5
11. I get upset a lot more than my father knows about.	1	2	3	4	5
12. When we discuss things my father cares about my point of view.	1	2	3	4	5
13. My father trusts my judgment.	1	2	3	4	5
14. My father has his own problems so I don't bother him with mine.	1	2	3	4	5
15. My father helps me to understand myself better.	1	2	3	4	5
16. I tell my father about my problems and troubles.	1	2	3	4	5
17. I feel angry with my father.	1	2	3	4	5
18. I don't get much attention from my father.	1	2	3	4	5
19. My father helps me to talk about my difficulties.	1	2	3	4	5
20. My father understands me.	1	2	3	4	5
21. When I am angry about something, my father tries to be understanding.	1	2	3	4	5
22. I trust my father.	1	2	3	4	5
23. My father doesn't understand what I am going through these days.	1	2	3	4	5
24. I can count on my father when I need to get something off of my chest.	1	2	3	4	5
25. If my father knows something is bothering me, he asks me about it.	1	2	3	4	5

## Appendix C

Children's Hope Scale (CHS)

Direction: The 6 sentences below describe how children think about themselves and how they do

things in general. For each sentence, please think about how you are in most situations.

Circle the number that describes you best. For example, circle 1 if it describes you "none

of the time." Or, if you are this way "all of the time," circle 6.

**1 = NONE OF THE TIME**

**2 = A LITTLE OF THE TIME**

**3 = SOME OF THE TIME**

**4 = A LOT OF THE TIME**

**5 = MOST OF THE TIME**

**6 = ALL OF THE TIME**

1. I think I am doing pretty well.	1	2	3	4	5	6
2. I can think of many ways to get the things in life that are most important to me.	1	2	3	4	5	6
3. I am doing just as well as other kids my age.	1	2	3	4	5	6
4. When I have a problem, I can come up with lots of ways to solve it.	1	2	3	4	5	6
5. I think the things I have done in the past will help me in the future.	1	2	3	4	5	6
6. Even when others want to quit, I know that I can find ways to solve the problem.	1	2	3	4	5	6