



Helicopter Parenting and Emotional Problems in Chinese Emerging Adults: Are there Cross-lagged Effects and the Mediations of Autonomy?

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Abstract

Although evidence suggests that helicopter parenting causes emotional problems in emerging adults, how emotional problems in emerging adults affect helicopter parenting and the mediating role of autonomy in reciprocal relationships is little known. Therefore, this study collected data from 418 Chinese university students (80.1% female; $M_{age} = 18.71$, $SD = 1.15$) three times (in the second, fourth, and fourteenth months after enrollment) about perceived helicopter parenting, emotional issues (anxiety and depressive symptoms), and autonomy. The results of the cross-lagged panel models showed that emotional problems in emerging adults predicted the later assessment of helicopter parenting, the reverse relationship between the two variables was not the case. Emerging adults' emotional issues at Time 1 reduced their autonomy at Time 2, leading to increased helicopter parenting behaviors at Time 3. However, helicopter parenting at Time 1 did not affect emerging adults' autonomy at Time 2, which also had no relation to their emotional problems at Time 3. These findings suggest that helicopter parenting is more likely a reaction to maladjustment in emerging adults than an influencing factor. The research clarifies changes in parent-child interactions during the transition to adulthood and will help promote the adaptation of emerging adults in college.

Keywords Emerging adulthood · Helicopter parenting · Anxiety symptom · Depressive symptom · Autonomy

Introduction

A parenting style known as “helicopter parenting” has become an essential topic in emerging adulthood research, which covers the age range of 18 to 29 (Arnett, 2015). A rising number of studies have explored the impacts of helicopter parenting on emerging adults' school adaptations, career developments, and intimate relationships, aiming to determine whether parents' care and support go beyond what emerging-adult children need and have detrimental effects on them. According to these findings, undergraduates who experienced helicopter parenting are more likely to have anxiety and depressive symptoms (Cui

et al., 2018). Because emerging adults often encounter a variety of complex challenges in the process of differentiation. Like peers in other countries, Chinese college students have experienced an increase in anxiety and depressive symptoms in recent years, reaching 13.7 percent and 20.8 percent, respectively (Chen et al., 2022). Helicopter parents may also believe that their youngsters still require additional guidance due to the emotional challenges they face in college (Darlow et al., 2017). This study explored the reciprocal relationship between helicopter parenting and college students' emotional problems and its mediating factors.

Helicopter Parenting

Helicopter parenting refers to the actions of parents' excessive involvement, interference, or control of their children's lives to help them overcome difficulties or cope with challenges. It is a kind of overparenting (Segrin et al., 2012) and includes at least three dimensions: high warmth, high control, and low autonomy support (Padilla-Walker & Nelson, 2012). Parents who

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hovered over their children are more likely to ensure their happiness and success (LeMoyné & Buchanan, 2011). High warmth from parents may benefit children with parents' support (Padilla-Walker & Nelson 2012), life satisfaction (Fingerman et al., 2012), and academic functioning (Luebke et al., 2018). However, helicopter parents' excessive interference and control of their children can also be detrimental to their mental health (Cui et al., 2018) and other characteristics (Schiffrrin et al., 2019). The young person must strike a balance between their unique demands and their parents' need for emotional connection when they go through the differentiation from adolescence (Gavazzi et al., 1993). Children who have experienced overbearing parental engagement or control may be blurred or unclear about the parent-child boundaries and have troubles in differentiation, all of which will lead to future emotional, cognitive, and behavioral difficulties (Bradley-Geist & Olson-Buchanan, 2014).

Most studies on helicopter parenting have revealed findings on parents in general. In the few research that assessed the helicopter parenting of mothers and fathers in emerging adults, some discovered that mothers employed it more frequently than fathers (Schiffrrin et al., 2019), while others found no difference (Padilla-Walker & Nelson, 2012). Research on parenting has also revealed that parents treat their sons and daughters differently and that this differential treatment leads to various outcomes in children. However, many studies found that sons and daughters reported equal degrees of helicopter parenting and helicopter parenting had similar impacts on both boys and girls (Schiffrrin et al., 2019). Few studies have looked at the child gender difference of helicopter parenting and produced contradictory findings, with some suggesting that mothers assist their boys more than their daughters (Fingerman et al., 2012) and others suggesting the opposite (Somers & Settle, 2010). Nevertheless, helicopter parenting has a deleterious effect on children regardless of the gender of parents and children.

Economic, social, and technical developments increased the number of helicopter parenting practices among Chinese parents. The last 40 years in China have seen an increase in family incomes nationwide. The only-one-child policy in China has restricted the number of children per family to an average of one or two. Technology advancements have also increased the frequency and convenience of parent-child contact. Aside from these issues, most Chinese parents still adhere to conventional ideas about family and education, such as prioritizing one or two children and ensuring they have the greatest possible living arrangements, educational opportunities, and parental support. Chinese parents also have higher expectations of their children and give them a lot of concern and affection. To compete with others, they would like to assist their children in attending the "elite few," which could lead to increased stress, emotional problems, social issues, decreased optimism, and even rebellion (Cameron et al.,

2013). In collective cultures, helicopter parenting might benefit teenagers and emerging adults (Lee & Kang, 2018). In contrast, most studies revealed that helicopter parenting hurts adolescents (Leung, 2020) and young adults (Wang et al., 2021).

Helicopter Parenting and Emerging Adults' Emotional Problems

As emerging adults may experience a period of instability and uncertainty, emerging adulthood is a life stage with a high prevalence of emotional problems, particularly anxiety and depressive symptoms (Arnett et al., 2014). Clinical levels of anxiety and depressive symptoms can cause college students' low quality of life (Gan & Yuen Ling, 2019), cell phone addiction (Harrison et al., 2022), substance abuse (Cranford et al., 2009), and even suicide (Kalin, 2021). Subclinical anxiety and depressive symptoms can also affect academic performance (Al-Qaisy, 2011), peer relationships (Forbes et al., 2019), and families (Cosgrove et al., 2019). Emotional problems are the results of social, psychological, and biological factors. Regarding social factors, some research has focused on the association between familial factors and emotional problems in young people (Kim et al., 2020; Lema-Gómez et al., 2021).

Recent studies have linked helicopter parenting to college students' emotional problems, primarily anxiety and depressive symptoms. These studies have been conducted not only in the United States (LeMoyné & Buchanan, 2011) but also in Turkey (Ulutas & Aksoy, 2014), Israel (Rousseau & Scharf, 2015), South Korea (Kwon et al., 2016), Spain (Kouros et al., 2017), Ireland (Reilly & Semkovska, 2018), Finland (Cui et al., 2018) and China (Wang et al., 2021). There may be several reasons why helicopter parenting behaviors affect the emotional problems of emerging adults. First, excessive parental involvement, interference, or control may directly increase children's psychological distress. For example, youngsters with helicopter parents are concerned about not meeting their parents' expectations, leading to emotional issues such as depression (Lee & Kang, 2018). Second, excessive parenting can affect emerging adults' self-related beliefs and emotions by lowering their self-efficacy (Reed et al., 2016), allowing them to form the internal locus of control (Kwon et al., 2016) and exhibit high levels of narcissism (Segrin et al., 2013). These can limit their problem-solving abilities and effort levels, resulting in poorer adjustment results and emotional issues (Reed et al., 2016). Third, excessive parenting may impact children's self-control and psychological resilience (Reilly & Semkovska, 2018) and make it difficult for them to regulate their emotions when issues happen (Dorrance Hall et al., 2021).

However, few studies have examined the impact of emotional problems among emerging adults on helicopter

parenting. Perhaps it is because previous studies focused on the development of the individual and treated parenting as a constant factor. There is an interaction between parenting practices and psychological development in children (Sameroff & Mackenzie, 2003). Furthermore, a change in one family member may affect other family members and the functions of the family system (Bowen, 1993). Even though parents usually dominate or initiate parent-child interactions, this may alter as their children mature. According to the theory of Berne (1968), as children grow up, their interactions with their parents should gradually shift from being in the “parental state versus child state” to being in the “adult state versus adult state.” If an emerging adult transfers into an “adult state” while his or her parents are still in the “parental state,” he or she may feel more distress and emotional problems. If an emerging adult is maladjusted and refuses to “adult state,” his or her parents may continue to be in a “parental state.” The emotional struggles in emerging adults may validate psychological assumptions about their poor problem-solving abilities in parents, increase parental anxiety, and promote overparenting. Despite the lack of study on the effects of emotional issues among emerging adults on helicopter parenting, studies on the relationships between internalizing problems (including anxiety and depression) among teenagers and parenting behaviors have provided some evidence (Loukas, 2009; Reitz et al., 2006). In sum, there may be a relationship between college students’ emotional problems and helicopter parenting.

Mediation of the Autonomy

The significant harm of helicopter parenting is that it reduces emerging adults’ autonomy, which is the ability to make responsible decisions and behave independently under one’s preferences (Schiffirin et al., 2014). According to self-determination theory, autonomy is one of the three basic needs for psycho-social development and adaptation and is affected by the environment (Deci & Ryan, 2000). Excessive involvement or control from helicopter parents might limit autonomy needs in children (Okroy, 2016), whereas reduced autonomy could lead to emotional problems in college students (Inguglia et al., 2015). The mediating role of autonomy or psychological needs has been the topic of several recent research (Schiffirin et al., 2019; Wang et al., 2021). The research has found that helicopter parenting had a detrimental impact on autonomy (especially for females) or psychological needs, increasing anxiety and depressive symptoms among American and Chinese college students (Schiffirin et al., 2019; Wang et al., 2021). These cross-sectional studies’ findings highlight the mediating role of autonomy in the association between helicopter parenting and emerging adults’ emotional problems.

In contrast, emerging adults’ emotional problems may further undermine their autonomy or their desire for independence (Larde, 2020), forcing them to lean more heavily on their parents for support and finally increasing the use of helicopter parenting (Schiffirin et al., 2019). A negative self-concept can signify poor adjustment, which commonly presents with emotional problems like anxiety and depressive symptoms and includes poor decision-making and low capabilities (Feng et al., 2020). Children may convey some signals for help to their parents, who may then offer additional assistance or step in for their children when it comes to problem-solving (Odenweller et al., 2014). Nevertheless, if young adults attempt to solve problems on their own (i.e., gain autonomy) or satisfy their independent requirements with the aid of counseling (Wei et al., 2005), they will take away from emotional distress (McLeod et al., 2007). It will end the destructive cycle linking helicopter parenting to youngsters’ emotional problems. No studies have examined autonomy as a mediator in the effect of emotional problems in emerging adults on helicopter parenting. However, some related longitudinal studies have partially supported this possibility. For instance, cross-lagged impacts existed between autonomous goal motivation and depression among undergraduates and graduates (Moore et al., 2021); the performance of autonomy in adolescents significantly predicted maternal control (Ravindran et al., 2020). On the whole, there may be a mediation of autonomy between college students’ emotional problems and helicopter parenting.

Current Study

Prior research reveals that there may be a relationship between college students’ emotional problems and helicopter parenting. However, earlier research mainly employed a cross-sectional design, which made it difficult to assess the relationship. This study used a longitudinal research design to follow data from a sample of Chinese college students on three occasions to examine the reciprocal relationships and potential mediations of autonomy between helicopter parenting and emotional problems in emerging adults. There are four main research hypotheses of the study. Helicopter parenting has a longitudinal predictive effect on emotional problems in emerging adults (Hypothesis 1). Emotional issues in emerging adults have a longitudinal prediction on helicopter parenting (Hypothesis 2). Autonomy plays a longitudinal mediating role in the effect of helicopter parenting on emotional problems in emerging adults (Hypothesis 3). It also plays a longitudinal mediating role in the impact of emerging adults’ emotional problems on helicopter parenting (Hypothesis 4).

Methods

Participants

With the approval of IRB, two schools were randomly selected from the 21 schools of a university in Northeast China. All the first-year students in these two schools were invited to participate in this study. Like most other undergraduates in China, they all lived in the campus dormitories. Data collection was conducted in the second, fourth, and fourteenth months of their enrollment. The first two measurements were collectively performed online in classroom settings. The third measurement was separately conducted online at participants' convenient time within two days of a weekend. Of a total of 455 students, there were 418 valid data at Time 1 (T1, October 2019), 413 valid data at Time 2 (T2, December 2019), and 387 valid data at Time 3 (T3, October 2020). Finally, all the data of 418 students were retained for analysis, including 26 students who took only one measurement and five who took two measurements. The final participants were 18 to 23 years ($M = 18.71$, $SD = 1.15$) at T1. Among them, 80.1 percent were female, and 19.9 percent were male. 49.5 percent were the only child in their family, and 50.5 percent had siblings.

Regarding parents' education levels, 13.9% of fathers and 18.7% of mothers had primary school education and below, 61.2% of fathers and 59.3% of mothers had junior high or high school education, 23.4% of fathers and 21.1% of mothers had college or bachelor's degree, and 1.2% fathers and 0.7% mothers had master's degree and above. In terms of parents' economic income, 12.4% of fathers and 4.8% of mothers earned more than 9000 RMB (about 1275 USD) per month, 53.6% of fathers and 40.1% of mothers earned between 3000 and 9000 RMB per month, and 33.7% of fathers and 54.1% of mothers earned less than 3000 RMB (about 425 USD) per month.

Measures

Helicopter parenting

Helicopter parenting was measured using a helicopter parenting scale (Padilla-Walker & Nelson, 2012). The scale consists of five items, one of which is "My parent makes important decisions for me." The participants gave their responses on a Likert-like scale from 1 (do not like) to 5 (a lot like). A research assistant translated the items from English to Chinese (Meng, 2020). Then, another researcher translated the Chinese version of the scale into English. A native English speaker compared the new and original versions to ensure they were identical. The Chinese version showed good reliability and validity among emerging Chinese adults (Wang et al., 2021). The total score of all

items on this scale was the score of helicopter parenting in this study, with higher scores indicating more helicopter parenting among the participants' parents.

Autonomy

Autonomy was measured using a section of the Basic Needs Satisfaction In General Scale (BNS-S; Johnston & Finney, 2010), whose Chinese version showed good reliability in prior studies (e.g., Shen et al., 2013). There are seven items, e.g., "I feel like I am free to decide for myself how to live my life." The participants were required to rate the items on a Likert-like scale from 1 (not at all true) to 7 (very true). In this study, participants' autonomy level was determined by their total scores on all items, with higher scores indicating greater autonomy levels among the participants.

Depressive symptoms

Depressive symptoms at T1 and T2 were measured using seven items from the depression subscale of the Depression Anxiety Stress Scale (DASS; Antony et al., 1998), whose Chinese version also showed good reliability among Chinese college students (Gong et al., 2010). When asked to rate how often they "could not seem to experience any positive feelings at all," participants were given the option ranging from 0 (did not apply to me at all) and 3 (very often or most of the time). A scaled score of 10 to 13 indicates mild depressive symptoms, 14 to 20 indicates moderate depressive symptoms, 21 to 27 indicates severe depressive symptoms, and a scaled score equal to or higher than 28 indicates very severe depressive symptoms. Depressive symptoms at T3 were measured using a 20-item depression scale developed by the Center for Epidemiologic Studies (CESD; Radloff, 1977). Its Chinese version showed good reliability in prior studies (e.g., Niu et al., 2021). The amount of "I felt bothered by things that usually do not bother me" was indicated by the participants on a Likert-like scale of 0 (rarely or never) to 3 (most or often). A scaled score of 10 to 15 indicates having depressive symptoms, 16 to 19 indicates mild depressive symptoms, and a scaled score equal to or more than 20 indicates severe depressive symptoms. At each time, the total score of all items was the depressive symptoms score, with higher scores indicating worse depressive symptoms among the participants.

Anxiety symptoms

Anxiety symptoms at T1 and T2 were measured using seven questions from the anxiety subscale of the DASS. Participants rated how much of each statement (e.g., I was aware of dryness of my mouth) applied to them in the preceding week on a scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the

time). A scaled score of 8 to 9 indicates mild anxiety symptoms, 10 to 14 indicates moderate anxiety symptoms, 15 to 19 indicates severe anxiety symptoms, and a scaled score equal to or higher than 20 indicates very severe anxiety symptoms. Anxiety symptoms at T3 were measured using 21 items of the Beck Anxiety Inventory (BAI; Beck et al., 1988), which was widely used in China and had good reliability among Chinese college students (e.g., Zhou et al., 2018). Participants rated how much they had been disturbed by each symptom over the past week on a Likert-like scale ranging from 0 (not at all) to 3 (severely—I could barely stand it). A scaled score of 15 to 25 indicates mild anxiety symptoms, 26 to 35 indicates moderate anxiety symptoms, and a scaled score equal to and more than 36 indicates severe anxiety symptoms. At each time, the total score of all items was the anxiety score, with higher scores indicating worse anxiety among the participants.

Finally, Table 1 shows the model fitting index, composite reliability (CR), average variance extracted (AVE), and Cronbach's alphas (CA) dependability for each scale in three waves. The results indicated that the scales all had good reliability and validity in the current study.

Data Analysis

Missing data

The attrition rate of subjects between the first measurement and the second measurement was 1.20%. The attrition rate for subjects between the first and third measurements was 7.42%. The Missing Completely at Random (MCAR) test was used to assess the nature of missing data in the current study. The results showed that the missing values pattern was completely random, $\chi^2(177) = 206.057$, $p > 0.05$. A t-test was used to check whether there were differences

between the attrited participants and the remaining participants on the study variables measured at T1. The final participants did not differ from those who dropped out of the study in terms of helicopter parenting ($t = -0.142$, $p = 0.887$, $d = -0.014$), autonomy ($t = -0.419$, $p = 0.674$, $d = -0.041$), depression ($t = 1.118$, $p = 0.264$, $d = 0.110$), or anxiety ($t = 0.662$, $p = 0.508$, $d = 0.065$) at T1. The results showed no group differences in the study variables measured at T1, which further indicated that the attrition of participants had no relation with the study variables. Main analyses were conducted using the full information maximum likelihood (FIML) estimation, as appropriate when estimating structural equation models when data are missing at random or not at random (Newsom 2015). Using FIML estimation to deal with non-MCAR data is preferable to using other means of handling missingness, such as listwise deletion (Schafer & Graham, 2002).

Analytical procedure

The software Mplus 8.0 was mainly used to test the hypothesis through cross-lagged analysis in this study. The Chi-squared (χ^2), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root means square residual (SRMR) were all used to evaluate the model fit. Depressive and anxiety symptoms were combined into the second-order variable of emotional problems. Cross-lagged panel models were used to test the mutual relationships between helicopter parenting and emotional problems among college students and then the mediation of autonomy in the relationships. Chi-square difference tests were conducted to compare the relative fit of the nested models. Bootstrapping was used to test the values and significance of indirect effects in cross-lagged panel models. It does not

Table 1 Indicators for each scale's validity and reliability in three waves

Variables	χ^2	df	CFI	TLI	RMSEA	SRMR	CR	AVE	CA
HP T1	7.240	4	0.994	0.986	0.044	0.019	0.759	0.389	0.768
HP T2	16.960	4	0.977	0.943	0.089	0.028	0.770	0.405	0.785
HP T3	15.551	4	0.988	0.970	0.086	0.032	0.843	0.534	0.846
Au T1	41.569	11	0.948	0.900	0.082	0.039	0.663	0.264	0.683
AuT2	26.298	11	0.979	0.959	0.058	0.031	0.731	0.310	0.751
AuT3	42.249	11	0.962	0.928	0.086	0.042	0.732	0.380	0.716
DS T1	41.433	13	0.978	0.965	0.072	0.033	0.860	0.473	0.864
DS T2	88.703	14	0.945	0.918	0.114	0.038	0.887	0.529	0.884
DS T3	448.104	160	0.917	0.901	0.068	0.065	0.909	0.352	0.785
AS T1	60.629	14	0.947	0.921	0.089	0.038	0.828	0.414	0.817
AS T2	71.081	14	0.952	0.928	0.099	0.035	0.873	0.497	0.869
AS T3	651.662	172	0.924	0.907	0.085	0.045	0.961	0.540	0.959

HP Helicopter Parenting, Au Autonomy, DS Depressive Symptoms, AS Anxiety Symptoms, T1, T2, T3 Time 1, 2, and 3, respectively, CR composite reliability, AVE Average Variance Extracted, CA Cronbach's alpha

Table 2 Descriptive statistics, analysis of variance, T-tests, and correlation analysis for the variables

	Min.	Max.	M	SD	F	t	1	2	3	4	5	6	7	8	9	10	11
HP T1	5	25	10.520	3.669	0.119	-0.493											
HP T2	5	22	10.643	3.351	0.746	0.835	0.562**										
HP T3	5	25	9.941	3.824	0.981	3.725***	0.293**	0.355**									
Au T1	14	49	32.547	5.733	0.119	-0.498	-0.266**	-0.232**	-0.242**								
Au T2	13	49	32.418	5.768	0.745	0.826	-0.151**	-0.261**	-0.304**	0.617**							
Au T3	12	49	31.703	5.945	0.981	3.718***	-0.166**	-0.225**	-0.283**	0.504**	0.460**						
DS T1	7	26	11.684	4.048	0.119	-0.494	0.245**	0.252**	0.269**	-0.521**	-0.418**	-0.337**					
DS T2	0	21	4.626	4.050	0.745	0.832	0.128**	0.195**	0.303**	-0.416**	-0.519**	-0.399**	0.509**				
DS T3	0	44	15.522	6.663	0.981	3.723***	0.026	0.025	0.183**	-0.168**	-0.230**	-0.257**	0.225**	0.337**			
AS T1	7	26	11.770	3.784	0.119	-0.486	0.249**	0.250**	0.247**	-0.493**	-0.412**	-0.329**	0.820**	0.503**	0.286**		
AS T2	0	21	4.840	3.949	0.745	0.834	0.164**	0.239**	0.304**	-0.388**	-0.506**	-0.396**	0.477**	0.874**	0.352**	0.524**	
AS T3	0	42	5.693	8.386	0.981	3.728***	0.098	0.101*	0.293**	-0.265**	-0.290**	-0.293**	0.366**	0.428**	0.410**	0.351**	0.427**

The F value represents the outcome of the age variance test, and the t value illustrates the result of the gender difference test
 HP Helicopter Parenting, Au Autonomy, DS Depressive Symptoms, AS Anxiety Symptoms, T1, T2, T3 Time 1, 2, and 3, respectively
 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

rely on the assumption that the sampling is the normal distribution but is to use the observed sample to reestablish a distribution through multiple repeated sampling. The indirect effect size is statistically significant if the 95% bias-corrected confidence interval for the parameter estimate does not contain 0, indicating a mediating effect.

Results

Preliminary Analysis

As the participants reported all the data, Harman’s single-factor method was used to examine the common method bias. This method is based on the assumption that common method bias is a significant concern when a single latent factor accounts for the bulk of the covariance among the measures (Podsakoff et al., 2003). A one-factor confirmatory factor analysis was done for all the data collected in each wave. The indexes of the three one-factor models were unacceptable (T1: $\chi^2 = 1798.685$, $df = 299$; TLI = 0.655; CFI = 0.625; RMSEA = 0.110; SRMR = 0.093; T2: $\chi^2 = 1678.291$, $df = 299$; TLI = 0.719; CFI = 0.694; RMSEA = 0.106; SRMR = 0.094; T3: $\chi^2 = 7078.715$, $df = 1325$; TLI = 0.541; CFI = 0.522; RMSEA = 0.106; SRMR = 0.111). The results indicated that this study did not have a severe problem of common method bias.

Table 2 shows the results of descriptive statistics, correlation analysis, t-tests, and analysis of variance for all the variables in this study. At T1, T2, and T3, helicopter parenting negatively correlated with autonomy, and autonomy negatively correlated with two kinds of emotional problems (depressive and anxiety symptoms). The results of one-way ANOVA indicated that there was no significant age difference in all variables. The results of t-tests demonstrated no significant gender difference in the variables measured in the first two times, except for the variables measured in the third time.

Cross-Lagged Panel Models

A cross-lagged panel model of helicopter parenting and emotional problems in the three waves (Model 1, seen in Fig. 1) was examined with age as a control variable. Table 3 demonstrates how well Model 1 fitted. Figure 1 shows the regression coefficient of each path in the model. Emotional problems at T1 and T2 predicted helicopter parenting at the following time points. However, helicopter parenting at T1 and T2 did not predict emotional problems at the following time points. The results rejected the hypothesis of a bidirectional cross-lagged relationship between helicopter parenting and emotional problems.

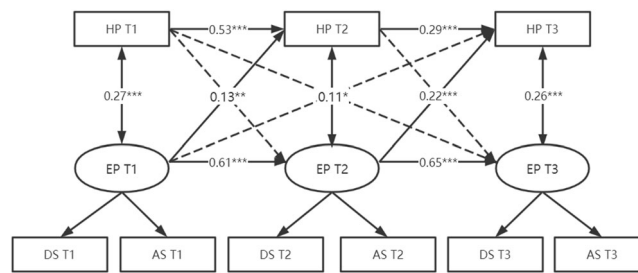


Fig. 1 Path coefficients in Model 1. *HP* Helicopter Parenting, *EP* Emotional Problems, *DS* Depressive Symptoms, *AS* Anxiety Symptoms, *T1, T2, T3* Time 1, 2, and 3, respectively. The straight line

represents a significant path, and the dashed line represents an insignificant path. All regression coefficients are standardized and labeled as significant in the figure. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 Fit Indices for cross-lagged panel models

	χ^2	df	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	p
Model 1	41.552	22	0.988	0.977	0.046	0.027			
Model 2	154.460	48	0.952	0.925	0.073	0.083	58.729	7	0.000
Model 3	109.923	48	0.972	0.957	0.056	0.046	14.864	5	0.048
Model 4	93.731	41	0.976	0.957	0.055	0.035			

Three models were constructed to examine the bidirectional mediation of autonomy between helicopter parenting and emotional issues with age as a control variable. The first model looked at how helicopter parenting behaviors indirectly affected college students’ emotional issues through their autonomy (Model 2, seen in Fig. 2). The second model examined how autonomy could mitigate the indirect effects of emotional problems among college students on helicopter parenting (Model 3, seen in Fig. 3). The third model contained all potential cross-lagged paths between variables and was a fully saturated transactional model (Model 4, seen in Fig. 4). As shown in Table 3, the three models all fit well. For the optimal model, the chi-square values of Model 2 and Model 3 were compared with that of Model 4. The results showed that Model 4 had a better model fit than Model 2 and Model 3 (seen in Table 3).

Table 3 displays all the model fit indices for each cross-lagged panel model mentioned above. Figures 2–4 display the standardized parameter estimates for each model. Findings from the three models are comparable. As shown in Fig. 4, emotional problems at T1 negatively predicted autonomy at T2 ($\beta = -0.154$, $p = 0.007$, $R^2 = 0.396$), which further predicted helicopter parenting at T3 ($\beta = -0.184$, $p = 0.001$, $R^2 = 0.191$). However, helicopter parenting at T1 did not significantly predict autonomy at T2 ($\beta = 0.029$, $p = 0.459$, $R^2 = 0.367$), and autonomy at T2 did not significantly predict emotional problems at T3 ($\beta = -0.092$, $p = 0.209$, $R^2 = 0.332$). According to all the results, autonomy at T2 mediated the relationship between emotional problems at T1 and helicopter parenting at T3.

However, it did not mediate the relationship between emotional problems at T3 and helicopter parenting at T1.

Table 4 displays the direct, indirect, and total effects of Model 4. According to the standardized bootstrap estimates and 95% confidence intervals, the mediation of autonomy at T2 did exist between emotional problems at T1 and helicopter parenting at T3. The 95% CI corresponding to the indirect path of emotional problems scores at T1 to helicopter parenting at T3 was [0.008, 0.066] and did not contain 0, indicating that the indirect effect was significant. The indirect effect was 0.028, accounting for 20.29% of the total effect.

Discussion

Prior research using cross-sectional designs has looked at the impact of helicopter parenting on emotional issues in emerging adults and the mediating role of autonomy between the two variables. However, few studies have investigated the reverse effects. The current study used a sample of Chinese college students and a longitudinal design to investigate the relationship between helicopter parenting and the emotional problems of emerging adults in their first college years. Although the cross-lagged analysis did not yield the same conclusions as earlier research, it did identify the impact of emotional problems in emerging adults on helicopter parenting and the mediating role of autonomy in this impact. Nevertheless, this study’s outcomes of cross-sectional data analysis matched those in earlier cross-sectional research.

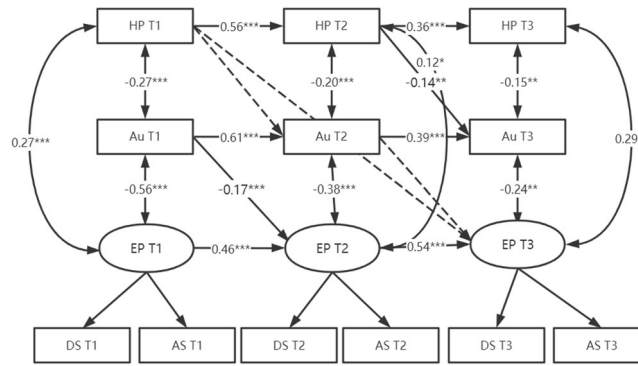


Fig. 2 Path coefficients in Model 2. *HP* Helicopter Parenting, *Au* Autonomy, *EP* Emotional Problems, *DS* Depressive Symptoms, *AS* Anxiety Symptoms, *T1*, *T2*, *T3* Time 1, 2, and 3, respectively. The straight line represents a significant path, and the dashed line

represents an insignificant path. All regression coefficients are standardized and labeled as significant in the figure. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

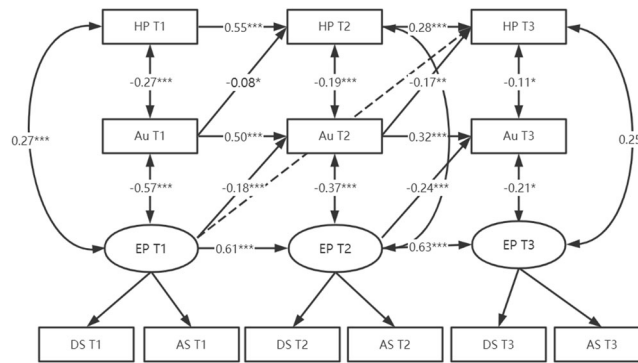


Fig. 3 Path coefficients in Model 3. *HP* Helicopter Parenting, *Au* Autonomy, *EP* Emotional Problems, *DS* Depressive Symptoms, *AS* Anxiety Symptoms; *T1*, *T2*, *T3* Time 1, 2, and 3, respectively. The straight line represents a significant path, and the dashed line

represents an insignificant path. All regression coefficients are standardized and labeled as significant in the figure. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

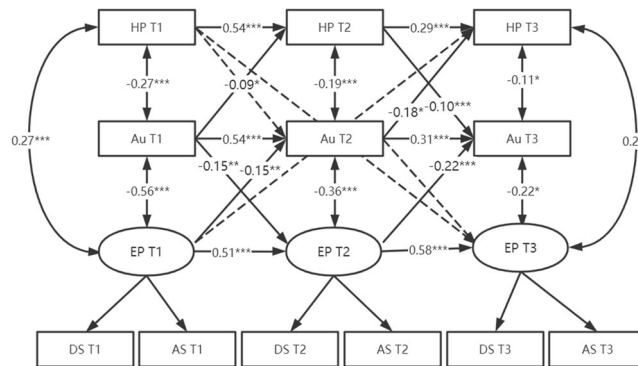


Fig. 4 Path coefficients in Model 4. *HP* Helicopter Parenting, *Au* Autonomy, *EP* Emotional Problems, *DS* Depressive Symptoms, *AS* Anxiety Symptoms, *T1*, *T2*, *T3* Time 1, 2, and 3, respectively. The straight line represents a significant path, and the dashed line

represents an insignificant path. All regression coefficients are standardized and labeled as significant in the figure. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 Direct and indirect effects in model 4

Model pathway		Effect	SE	95%CI	
				LLCI	ULCI
–	–	–	–	–	–
Pathway from HP T1 to EP T3	Total effect	–0.024	0.062	–0.138	0.104
	Specific indirect	–0.003	0.005	–0.021	0.002
	Direct	–0.022	0.062	–0.134	0.111
Pathway from EP T1 to HP T3	Total effect	0.138	0.064	0.013	0.260
	Specific indirect	0.028	0.013	0.008	0.066
	Direct	0.110	0.068	–0.018	0.243

All effects are standardized

HP Helicopter Parenting, EP Emotional Problems, T1, T3 Time 1 and 3

Mutual Influence of Helicopter Parenting and Emerging Adults' Emotional Problems

The results of the cross-lagged analysis showed that helicopter parenting measured at T1 was not a significant predictor of college students' emotional problems measured at T2 and T3, nor did helicopter parenting measured at T2 significantly predict emotional issues among college students measured at T3. These results disproved Hypothesis 1. Nevertheless, there was still a strong correlation between helicopter parenting and emotional problems among college students at each measurement time, which was in line with prior findings from cross-sectional studies (Cui et al., 2018). In the current study, helicopter parenting did not predict emotional issues in emerging adults in a longitudinal direction for some reasons. First, compared to helicopter parenting, participants' anxiety and depression levels at T2 and T3 may have stronger correlations with other stressors, such as how well they adjusted to school and the COVID-19 pandemic. Second, after emerging-adult children enter college, overparenting tendencies diminish (Nelson et al., 2021), suggesting that parental influence over their emotional well-being completely fades. Third, this study used a cross-lagged analysis to account for the auto-regressive effects of the variables across the three measures. This analysis better reveals the relation between the variables than the regression analysis. Although helicopter parenting may exacerbate emotional problems in emerging adults due to worsening parent-child relationships, it may not be the direct or primary cause of depression and anxiety in college students (Reed et al., 2016).

Nevertheless, emotional problems measured at T1 and T2 strongly predicted helicopter parenting at T2 and T3, respectively. These findings were consistent with Hypothesis 3, which suggested that the emotional difficulties of college students may lead to increased helicopter parenting. There are several explanations for the relationship. First, children's high levels of anxiety or depression may confirm assumptions about their children's poor problem-solving abilities in parents, which may reflect in their greater involvement in children's lives (Loukas, 2009). Second,

when children are maladjusted, parents will take action to help work through children's emotional problems, increasing their control and monitoring of children's thoughts and feelings (Stattin & Kerr, 2000). Third, a variety of undesired behaviors are also present alongside children's emotional issues (Jolliffe et al., 2019), which may prevent parents from implementing effective parental involvement (higher levels of helicopter parenting) for emotional reactions in them (Kerr & Stattin, 2003).

The results of the two parts demonstrate that excessive parental intervention or control is not the primary cause of emerging adults' emotional problems, and the increase in overparenting behavior is a reaction to such issues. These outcomes were in line with what some other investigations have discovered. Whereas parenting practices did not predict adolescents' internalizing problems assessed a year later, internalizing problems in teenagers did predict parenting practices measured a year later (Reitz et al., 2006). In sum, parental behaviors represent a slight direct threat to children's emotional health when they enter college. Parenting practices were responses to their youngsters' emotional problems (Kerr & Stattin, 2003). Since the start of the individuation-separation process, parental influence has been waning while children are taking center stage in parent-child interaction, gradually transitioning from "parental state versus child state" to "adult state versus adult state" in emerging adulthood.

The Mediating Role of the Autonomy in the Mutual Influence

According to Models 3 and 4, autonomy at T2 did not mediate the relationship between helicopter parenting at T1 and emotional problems at T3. Unlike Hypothesis 2, this result suggested that autonomy could not buffer the longitudinal association between helicopter parenting and emotional issues among emerging adults. It is probably due to the only-one-year following time, which makes it difficult to make changes among the variables. The three variables correlated significantly with one another at each time point, which is also consistent with the findings of prior

cross-sectional studies (Schiffirin et al., 2019). Models 2 and 4 showed that helicopter parenting at T2 strongly predicted autonomy at T3, while autonomy at T1 significantly predicted emotional difficulties at T2. These findings corroborated Hypothesis 2 to some extent, although not in the same chronological order as Hypothesis 2. It may be due to the irregular timing of the three measurements used in this study. Autonomy may also act as a delayed mediator in the impact of helicopter parenting on the emotional issues of emerging adults.

Models 3 and 4 also demonstrated that autonomy at T2 moderated the association between emotional issues at T1 and helicopter parenting at T3, supporting Hypothesis 4. According to this result, emerging adults' emotional problems reduced their autonomy, intensifying helicopter parenting. Explicitly speaking, college students are more likely to face temporary declines in self-assertion, self-evaluation, and autonomous behaviors if they experience more significant emotional difficulties at the beginning of the first semester (Moore et al., 2021). Emerging adults must continually maintain their dependence despite their urge to have independence as soon as possible (Odenweller et al., 2014). They may indicate to their parents that they require help in the upcoming time, and their parents may become more accommodating, helpful, involved, or invasive after recognizing the signals (Deslandes et al., 2001). From the perspective of the self-defense mechanism, the decreased autonomy is probably a regression. A retreated emerging adult will maintain the "child state" in parent-child interaction, leading parents to keep the "parental state."

Youngsters in collectivist cultures are more likely to believe that parents should always assist their children and that children have the right to ask for their support. Parents in collectivist cultures also desire to provide their emerging-adult children with much more help. A crucial aspect of comprehending parent-child interactions in Chinese culture is filial piety. Filial piety is the return of children to parental kindness, as opposed to the absolute control of parents over children and the blind obedience of children to their parents. Children must maintain their bodies for heredity purposes and contribute to society to honor the family (Leung & Shek, 2018). Chinese children frequently take on or internalize their parents' hopes and expectations, and Chinese parents always make all efforts to ensure their children succeed. It appears that children's achievement results from the collaborative efforts of parents and children. As a result, when students struggle in college, they become more dependent on their parents for support, which leads to increased helicopter parenting (Schiffirin et al., 2019).

Implication, Limitations, and Future Research

Even though it did not conclusively demonstrate the cross-lagged relationship between helicopter parenting and

emotional problems in college students, this study showed the long-term impact of emotional issues among college students on helicopter parenting and the mediating role of autonomy in the relationship. These findings contribute to understanding how emerging adults and their parents interact after they begin to live independently. Although helicopter parenting could affect emerging adults' autonomy, which also could affect emerging adults' emotional difficulties at different times, helicopter parenting is more likely to be a reaction to emerging adults' maladaptation and lower autonomy. In the parent-child interaction, emerging adults begin to play a more dominant role. When emerging adults are maladjusted or in less self-determination, they may return to the "child state," and their parents may keep the "parent state" and give more help, interfere, or even control their college life.

This study has some limitations, which could be improved in future studies. First, this study chose first-year college students to explore how emerging adults adjust to living independently away from home. Future research involving emerging adults of different ages is required to validate the findings of this study. Second, the participants were assessed in the second, fourth, and fourteenth months after they entered college. In future research, the same time interval, more tracking times, and more extended period in the data tracking process may reveal more detailed interaction mechanisms. Third, the proportion of female students is relatively high because the university educates teachers, even though this study comprised a representative sample of two schools inside the university. Few variables differed by gender in this study and prior research (Burke et al., 2018; Darlow et al., 2017). Future studies might establish a more realistic gender parity. Fourth, all the data were collected via participants' self-reports. Future researchers should consider different data collection methods, even though the statistical results of this study did not indicate any significant bias for the same methodology. Fifth, like most previous studies, this study did not distinguish between father and mother in the measurement of helicopter parenting, which is one of the future directions in this field.

Conclusion

Multiple studies have used cross-sectional data to examine the relationship between helicopter parenting and emotional issues in emerging adults. The impact of emerging adults' emotional issues on helicopter parenting and its underlying mechanisms is little known. The current study used longitudinal data to examine the interrelationship between helicopter parenting and emotional problems and the role of autonomy as a mediator. The results showed that emerging adults' emotional problems promoted their parents'

helicopter parenting behaviors directly and indirectly through their autonomy. Conversely, helicopter parenting did not have a longitudinal impact on emotional difficulties among emerging adults in chronological order but was a way of time dislocation. These findings will help understand parent-child interactions in emerging adulthood and address the emotional issues of college students and mental health instruction.

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Authors' Contributions W.G. designed the study, coordinated the data collection and analysis, and drafted and revised the manuscript; Y.H. participated in the research design, conducted the data analysis, and drafted and revised the manuscript; S.H. participated in the research design and data analysis; A.Y. participated in the research design and data collection. All authors read and approved the final manuscript.

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Data Sharing Declaration The datasets generated and analysed during the current study are not publicly available but are available from the corresponding author upon reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Consent to Participate Informed consent was obtained from the participants included in the study.

Ethics Approval The research procedure followed the Ethics Committees' guidelines and was approved by the Institutional Review Board of Liaoning Normal University.

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