



Evaluating the Structure and Correlates of Helicopter Parenting in Mainland China

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Abstract

Helicopter Parenting (HP) refers to parenting behaviors such as overinvolvement and developmentally inappropriate support during late adolescence and emerging adulthood. To date, this construct has mainly been examined in Western cultures. This research developed and validated a multi-dimensional HP measure for mothers and late-adolescent children in Mainland China. Study 1 explored initial factor structure of HP with an online sample of Mainland Chinese mothers ($N = 433$; $M_{\text{age}} = 43.63$ years). Study 2 confirmed this structure with a new online sample of mothers ($N = 461$; $M_{\text{age}} = 44.39$ years), and assessed construct invariance between mothers of high school and college students. Study 3 confirmed this HP structure with mother-adolescent dyads ($N = 248$; Mothers: $M_{\text{age}} = 44.29$ years; Adolescents: $M_{\text{age}} = 17.37$ years) and assessed construct invariance and construct validity between dyad members. Across the three studies, results suggested a 16-item measure with four factors (advice/affect management, anticipatory problem solving, information-seeking, and emphasis on academic performance), which also loaded on a higher-order HP factor. The measure had good internal consistencies ($\alpha \geq 0.844$). Fits for mother-reported high school and college student measurement invariance model, and mother-adolescent invariance model were acceptable when constraining all factor loadings. Mother and adolescent HP reports were modestly positively correlated. Within-respondent correlations in Studies 2 and 3 showed that the total HP scores were positively correlated with behavioral control and emotional support. However, mother-reported HP was negatively correlated with adolescent-reported emotional support, suggesting discrepant views about which parenting behaviors are helpful vs. overbearing. Mother- and adolescent-reported HP scores were not related to adolescent-reported psychological control or self-efficacy. This study offers a concise, multidimensional Chinese HP measure which is useful to examine Chinese mother-adolescent reporter discrepancies, as well as associations between Chinese HP and youth's psychological functioning.

Keywords Helicopter Parenting · Parental Control · Emotional Support · Autonomy Granting · Parenting Style

Highlights

- This research developed a 16-item measure of HP, with four factors, that was invariant between mothers' and adolescents' reports in Mainland China.
- Results suggested that Chinese mothers and their adolescent children differed in views of the extent to which parenting behaviors were supportive vs. overbearing.
- In contrast to Western studies, HP was not associated with youth perceptions of psychological control or self-efficacy.

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“Helicopter parenting” (HP), also termed “overparenting”, describes parents who “hover over their children, ready to swoop down and resolve any problems that the child might encounter” (Segrin et al., 2012, p. 237), and typically hinders youth acquisition of independence. Prior studies have linked HP to youth adjustment problems including decreased self-efficacy (Bradley-Geist and Olson-Buchanan, 2014), greater depression and anxiety (Segrin et al., 2013), decision-making difficulties (Luebbe et al., 2018),

and poorer peer relations (Odenweller et al., 2014). Existing HP measurements have mainly been developed in Western cultures, and show substantial variation in item content and dimensionality. Despite the importance of cultural specificity in parenting practices (Bornstein and Cheah, 2006), investigations of HP in Eastern cultures, such as China, remain hampered by a lack of psychometrically valid measurement tools. Thus, the purpose of this research was to develop and validate a HP measure for Mainland Chinese mothers and late-adolescents.

Conceptualization of HP

Prior research suggests that HP includes ostensibly contradictory components of supportive and problematic (but well-intentioned) practices (Padilla-Walker and Nelson, 2012; Givertz and Segrin, 2014). HP includes a unique combination of normative or deleterious involvement, typically in late adolescence and emerging adulthood, that is beyond youth's growth needs. It generally includes high control and warmth, and a strong preoccupation with youth's success and happiness. Behaviorally, HP includes excessive levels of otherwise normative practices such as emotional support, advice giving, instrumental assistance, and information seeking, combined with maladaptive practices such as anticipatory problem solving (Segrin et al., 2012). Psychologically, helicopter parents' high levels of emotional involvement could be either helpful or problematic. For example, a normative level of encouragement when a child needs advice or emotional support could be interpreted as responsive. In contrast, parents' attempts to reduce any feelings of frustration or disappointment following a failure, or to offer advice anytime children face even minor decision-making opportunities, might prevent youth from forming skills such as independently regulating most of their negative affect and exercising age-appropriate levels of autonomy. Overall, this unique combination of child-focused parenting practices could adversely backfire and undermine youth development.

Several studies have developed multidimensional measurements of HP, in which different subscales load onto a general, higher-order factor (Luebbe et al., 2018; Segrin et al., 2012). The use of multidimensional measurement might reflect the conceptual complexity of HP, and also allow for examination of links between individual subscales and youth outcomes. Often, only some HP subscales are associated with parental over-control (e.g., Luebbe et al., 2018; Segrin et al., 2012), or with youth perceptions of support (Leung and Shek, 2018). Parents and/or youth might view some HP behaviors, in isolation, as desirable and helpful, but these become detrimental when they coexist with other more controlling and intrusive aspects of

HP (Buchanan and LeMoyné, 2020). For example, the HP measure developed by Segrin et al. (2012) comprises four dimensions: advice/affect management, anticipatory problem solving, child-self-direction, and tangible assistance. Although the advice/affect management subscale and tangible assistance subscale were positively correlated with an authoritative parenting style and negatively predicted family disengagement or enmeshment, the higher-order HP factor still predicted parent-child communication problems and child narcissism. Luebbe et al. (2018) also found that an information seeking subscale, on its own, showed positive links with parental care and youth's adaptive functioning (e.g., academic achievement), while other subscales (i.e., direct intervention and autonomy limiting) and the total HP factor showed no relationships or moderate negative correlations with parental care, adaptive decision-making, and academic functioning. While HP generally appears to be a multi-faceted construct, inconsistencies in its constituent dimensions still require further investigation. The current research includes three studies and examined a large pool of items from existing HP scales, with the aim of investigating the multidimensional structure of HP in Mainland China and its relationships with related parenting constructs.

Distinguishing HP from Similar Parenting Constructs

Research has examined associations between HP and individual parenting behaviors, as well as the broader permissive, authoritative, and authoritarian parenting styles identified by Baumrind (1971). For example, permissive parents and helicopter parents are both highly responsive, but permissive parents seldom provide the directiveness that is evident among helicopter parents (Segrin et al., 2012). Although helicopter parents are sensitive to youth's needs, they construe those needs largely in the parents' terms. This egocentric view also differentiates HP from the child-focused responsiveness observed in authoritative parenting. Similar to authoritarian parenting, HP is also often characterized as autonomy-limiting (Luebbe et al., 2018; Odenweller et al., 2014; Segrin et al., 2012), as both constructs reflect high parental demandingness and insensitivity to developing autonomy needs (Segrin et al., 2012). HP includes behavioral control practices, such as excessively regulating spare time, academic decisions, or friendships (Leung and Shek, 2018; Schiffrin et al., 2014). HP might also overlap with psychological control, involving manipulations of children's thoughts, emotions, and family attachments (Barber, 1996). However, HP might differ from authoritarian parenting in that this latter approach is inappropriately demanding, manipulative, and typically enacted to ensure respect of authority, while helicopter parents also

act with high responsiveness and focus on ensuring youth's success and happiness (Padilla-Walker and Nelson, 2012; Segrin et al., 2012). Subscales indexing autonomy-limiting practices in established HP measures sometimes load relatively low or insufficiently on a higher-order overparenting factor (e.g., Segrin et al., 2015), or emerge as a dimension separate from helicopter parenting (Schiffrrin et al., 2014). Thus, although helicopter parents often hinder youth's autonomy, this might be a less consistent characteristic of HP than dimensions highlighting excessive care and problem-solving. As a "novel style of parenting" (Odenweller et al., 2014), the theoretical conceptualization of HP still requires clarification. The present research examined associations between HP (both a total scale and separate subscales) and related parenting constructs in Mainland China. Specifically, we investigated the dimensionality of Chinese HP and assessed whether autonomy limiting is one of the defining dimensions. We further examined associations between HP and related parenting constructs (i.e., behavioral control, psychological control, emotional support) and Baumrind's three parenting styles (i.e., authoritarian, permissive and authoritative parenting). We expected that the overall HP scale would show positive relationships with both controlling and supporting behaviors, but individual HP subscales might vary in relationships with specific practices.

HP in the Chinese Cultural Context

To date, studies of HP in Chinese contexts are rare. Existing scales include a multidimensional measure developed for university undergraduates in Hong Kong (Leung and Shek, 2018) and a unidimensional measure created for Taiwanese high school students (Hong et al., 2015). However, the factor structure of HP has yet to be explored in Mainland China, or to incorporate parental perceptions. Potential cultural differences may exist between these regions; for example, Hong Kong's British colonial history and its economic role as a "gateway" to Western, implies a stronger mixture of Western and Eastern cultural features (Lam et al., 1999).

Extant literature on Mainland Chinese parenting suggests some cultural modifications to the HP construct. First, autonomy limiting might be rather common among Chinese parents, and not specifically pertain to the HP construct. Chinese (vs. American) parents tend to project their own goals onto their children and make more decisions about children's personal issues (Qin et al., 2009). Indeed, the one-child policy in Mainland China, enacted from the late 1970s to 2016, might foster norms among parents to engage in excessive involvement (Deutsch, 2006), and to experience higher pressure to help their children succeed

(Cameron et al., 2013). Therefore, high levels of autonomy restriction and instrumental assistance might be less defining features of HP, compared with Western parents and Chinese parents in non-Chinese contexts.

Second, emphasis on youth's academic performance might be more salient in Chinese HP than in other cultures. Chinese parents consider educational achievement to be both a moral imperative and evidence of successful child-rearing (Chao and Tseng, 2002). Thus, Chinese parents tend to provide more support for their children's schooling than Western parents (Ho and Willms, 1996). Indeed, Leung and Shek (2018) considered the emphasis on academic achievement and frequent comparisons with peers dimensions of their measure to be "unique" elements of Chinese HP. Youth's academic performance might therefore be a particularly notable component of Chinese HP that is rarely incorporated into measures developed with Western participants.

Third, prior studies suggested that Chinese youth might interpret various aspects of controlling parenting more positively than Western youth. With the notion of *guan* (training) being part of "good parenting" (Pomerantz and Wang, 2009), Chinese parents, compared to Western parents, tend to practice control more consciously and calmly, and with fewer negative emotions (Grusec et al., 1997). Youth may perceive those otherwise controlling behaviors as expressions of love and concern. Therefore, Chinese HP might be positively related to both behavioral and psychological control, as well as to parental warmth/emotional support. It is also possible that combinations of supportive and controlling practices are more prone to interpretation discrepancies between parents and their children. Thus, this issue requires further investigation, especially in contexts where youth might be more accepting of parental control and associate it with more positive connotations.

Reporters in HP Measurement

Most studies of HP have focused on youth perceptions (e.g., Hong et al., 2015; Leung and Shek, 2018, 2019; Luebke et al., 2018; Schiffrrin et al., 2014). However, others have used parents (Segrin et al., 2012) or parent-child dyads (Cui et al., 2019; Padilla-Walker and Nelson, 2012; Schiffrrin and Liss, 2017; Segrin et al., 2013, 2015). Parents' reports become important in addressing motivations that underlie particular practices, or when youth are not fully aware of their parents' behaviors (Hawk, 2017; Segrin et al., 2015). Additionally, no research to date has examined factorial equivalence between parent and youth reports, or even further, invariance across specific parent-child dyads. This is important, considering that explicit comparisons of parent and youth HP reports have found inconsistencies both across

studies and between reporters (Cui et al., 2019; Schiffrin and Liss, 2017; Segrin et al., 2013, 2015). Hence, our research aimed to examine measurement invariance between youth's and parents' reports in order to develop a comprehensive view of HP, and to investigate their differing controlling or supportive interpretations of HP behaviors.

Importantly, most studies of HP have focused on (parents of) college students in the period of emerging adulthood (e.g., Padilla-Walker and Nelson, 2012; Schiffrin et al., 2014; Segrin et al., 2012, 2013, 2015). This construct is less understood among adolescents, who typically spend more time with parents and are also less independent. Notably, high school students in Mainland China also often live in student dormitories, which is different from many of their Western counterparts. The developmental trajectory from adolescence to emerging adulthood includes growing needs for autonomy and accepting more responsibilities (Arnett, 2007). Considering that family interactions and obligations differ in many ways across these age groups, parents' developmentally (in)appropriate practices might differ accordingly. This research therefore examined HP measurement invariance between mothers of high school students and mothers of college students, in order to facilitate further research in comparing these two groups.

Research Aims

The goal of the current study was to develop and validate a multidimensional HP scale for Mainland Chinese mothers and late adolescents. We first gathered a large number of items from various existing scales, and conducted Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to determine the dimensions and items. To provide concurrent validation, we examined the relations between this new scale and a previous HP measure (Schiffrin et al., 2014), as well as related constructs (i.e., authoritarian, authoritative, and permissive parenting styles, behavioral control, psychological control, parental emotional support, and child self-efficacy). Study 1 aimed to explore the initial factor structure of the HP measure with an online sample of mothers in Mainland China. Study 2 then confirmed this structure with a new online sample of mothers, and assessed construct invariance between mothers of high school students and mothers of college students. Study 3 then confirmed this HP structure with mother-adolescent dyads, and assessed construct invariance and construct validity between mothers and youth. The surveys were all anonymous. The current research was approved by the Ethics Review Board of the authors' institution. The authors received no financial support for the research.

Study 1

In Study 1, we gathered and tested a large number of HP items, acquired or adapted from existing scales. We explored factor structure of these items and examined internal consistencies of resulting dimensions.

Method

Participants

Participants were 536 mothers recruited online from Shandong (33.4%), Guangdong (33.2%) and Anhui (33.4%) provinces. Participants focused on a child aged between 16 and 20 years, attending either high school (typically between the ages of 16 and 19) or the first 2 years of college. Outliers were identified at ± 3 SD for mother age and time to complete the survey. Respondents with children outside the recruitment criteria were also excluded. The remaining 433 mothers had a mean age of 43.63 years ($SD = 2.99$).

Within the sample, 97.9% of mothers were married, 1.6% were divorced, and 0.5% were widowed. Most (71.8%) had only one child, 27.3% had two children, and 0.9% had three children. Regarding mothers' education levels, 3.7% had a graduate degree, 41.6% had an undergraduate degree, 21% had a junior college degree, 7.4% had secondary vocational education, and 26.3% had high school education or below. Among their children, 231 were male and 202 were female ($M_{age} = 17.38$ years, $SD = 1.42$). Youth varied in grades, with 25.4%, 29.8%, and 16.6% enrolled in first, second, and third year of high school, respectively, 11.1% in first year of college, and 17.1% in second year of college. Regarding child order, 72.5% were only children, 23.6% were the eldest, 2.5% were the youngest, and 1.4% were a middle child. Most students (76%) lived with their mothers, and 18.5% lived in a dormitory. Others lived with another family member (0.9%), in an apartment (1.6%), on their own (1.8%), or other arrangements (1.2%).

Procedure

Participants were recruited from Sojump.com, an internet survey platform in Mainland China with a pool of over 2,600,000 people that vary in demographic distributions. Selection was random after screening for recruitment criteria. Time commitment and confidentiality were included in the informed consent waiver. The survey was administered in Chinese, and took an average of 12.51 min to complete.

Measures

We selected items from three existing multidimensional scales (Segrin et al., 2012; Luebbe et al., 2018; Leung and Shek, 2018). The scales from Segrin et al. (2012) and Luebbe et al. (2018) are consolidated and validated HP or overparenting scales in Western studies, with parent and emerging adult reporters, respectively. The scale from Leung and Shek (2018) was developed with adolescents in Hong Kong, and included potentially culture-specific elements relevant to Mainland Chinese families. We consolidated items with similar content. Ultimately, 63 items were selected, including 38 items from Segrin et al. (2012), 15 items from Luebbe et al. (2018), and 10 items from Leung and Shek (2018). Item wordings were revised for mother reports, and to increase generalizability between age groups. For example, the item, “I don’t want my child to have to worry about finances and how his/her bills will be paid” (Segrin et al., 2012) was reworded into “I don’t want my child to have to worry about finances and how much his/her expenses cost”. Translation and back translation was carried out by bilingual speakers. Segrin’s scale adopted a 5-point scale, while the other two scales used 6-point scales. Because East Asian participants more often choose “neutral” answers or scale midpoints (Hamamura et al., 2008), we adopted a 6-point format. Responses included “1 = *strongly disagree*”, “2 = *disagree*”, “3 = *slightly disagree*”, “4 = *slightly agree*”, “5 = *agree*”, and “6 = *strongly agree*”.

Analyses

The items were subjected to an EFA in SPSS with Maximum Likelihood estimation and Promax rotation, which allowed the factors to correlate (cf. Luebbe et al., 2018). A second EFA was then used to generate a simple structure and ensure that removal of items with poor loadings in the initial EFA did not affect results. Cronbach’s alpha indicated the internal consistencies of each subscale and the total scale.

Results

A Scree plot suggested six to eight factors. We adopted the criteria of Luebbe et al. (2018) to determine the final factors, in which specific items were retained if they loaded ≥ 0.40 on one factor but < 0.20 on all others, and each factor contained at least three items to ensure greater stability (Costello and Osborne, 2005). These criteria resulted in six factors with a total of 24 items. The secondary EFA suggested the same six dimensions, which we labeled advice/affect management (six items), anticipatory problem solving (four items), information seeking (four items), child self-

direction (four items), tangible assistance (three items), and emphasis on academic performance (three items). Items in the child self-direction dimension were reverse-scored so that higher scores indicated more parental autonomy limiting. One item (“I tell my child how to plan out certain activities”) from Segrin et al., 2012 dimension of anticipatory problem solving loaded into the advice/affect management dimension. Otherwise, items loaded on the same dimensions identified in prior studies. Scale items, factor loadings, and explained variance are shown in Table 1. The subscale Cronbach’s alphas ranged from 0.725 to 0.836, and the total scale reliability was also acceptable ($\alpha = 0.846$).

Study 2

Study 2 examined the HP factor structure generated in Study 1 using CFA, with a new online sample of mothers. We also assessed measurement invariance between mothers of high school students and mothers of college students. We examined correlations with another helicopter parenting scale, behavioral control, emotional support, parent anxiety, and parenting styles. We expected to confirm both the six-factor structure found in Study 1, and a higher-order model in which these factors loaded onto a latent HP factor. We also expected construct invariance between mothers of high school and college students. We expected positive correlations with the secondary HP scale, as well as with mother-reported behavioral control, anxiety, emotional support, and permissive and authoritarian parenting (Segrin et al., 2012), but not with authoritative parenting.

Method

Participants

Participants were 519 mothers recruited online from Shandong (33.1%), Guangdong (32.8%), and Anhui (34.1%) provinces in Mainland China. Participants focused on a child aged between 16 and 20 years old and attending either the last 2 years of high school or the first 2 years of college. Based on the same criteria as Study 1, 58 participants were excluded. The remaining 461 participants had a mean age of 44.39 years ($SD = 2.67$), with 244 mothers of high school students and 206 mothers of college students.

Most participants (97.6%) were married, and 2.4% were divorced. Most mothers (60.5%) had only one child, 35.8% of them had two children, and 3.7% of them had three or more children. Among these mothers, 35.4% of them had an undergraduate degree, and 3.1% had a graduate degree. An additional 20.6% had a junior college degree, 7.8% had

Table 1 Items, factor loadings, and variance explained for Helicopter Parenting measure (Study 1)

Items	AAM	APS	IS	CSD	TA	EAP
If I see that my child is feeling badly I try to cheer him/her up. ^a	<u>0.680</u>	−0.018	0.019	0.066	−0.056	0.002
I give my child advice on how to do things.	<u>0.650</u>	−0.131	−0.095	0.082	0.100	−0.009
I make suggestions to my child to help him/her get things accomplished.	<u>0.641</u>	0.017	−0.039	−0.040	0.014	0.052
I tell my child how to plan out certain activities.	<u>0.580</u>	0.073	−0.018	−0.006	0.016	0.020
I say or do things to cheer my child up.	<u>0.495</u>	0.081	0.114	−0.034	0.032	−0.099
I share ideas with my child about how to handle the various situations that s/he encounters.	<u>0.488</u>	0.050	0.071	−0.137	−0.076	0.039
I try to solve problems for my child before s/he even experiences them.	−0.027	<u>0.861</u>	−0.013	0.026	−0.044	−0.009
If I can see that my child is about to have some difficulty, I will intervene to take care of the situation before things get difficult for him/her.	0.016	<u>0.815</u>	−0.083	−0.002	0.054	0.004
I try to help my child steer clear of any troubles that s/he might encounter in the world.	−0.042	<u>0.700</u>	0.052	0.003	0.034	0.019
I try to anticipate things that will prevent my child from reaching his/her goals and act to eliminate them before they become a problem.	0.075	<u>0.593</u>	0.076	0.003	−0.017	−0.014
I want to know the “behind the scenes” information of my child’s social life.	0.005	−0.056	<u>0.859</u>	0.040	−0.005	−0.101
I like to know the details of my child’s daily schedule.	−0.113	0.081	<u>0.746</u>	−0.094	0.016	0.014
I like to have updates on my child’s day-to-day life.	0.100	0.001	<u>0.690</u>	0.074	−0.062	0.016
I like to have updates on my child’s whereabouts.	0.007	−0.008	<u>0.669</u>	0.015	0.066	0.131
Even though I can see potential problems developing before my child sees them, I will let my child resolve them on his/her own for the learning experience. (R) ^a	0.022	0.093	−0.065	<u>0.725</u>	0.024	−0.028
Whenever my child gets upset s/he can usually get things under control without too much input from me. (R) ^a	0.063	0.017	−0.035	<u>0.703</u>	−0.100	0.005
I let my child work out the problems that s/he encounters on his/her own. (R) ^a	−0.128	−0.007	0.050	<u>0.672</u>	0.073	0.001
I try not to intrude into my child’s private affairs. (R) ^a	0.021	−0.065	0.094	<u>0.605</u>	−0.004	0.030
I see to it that my child’s financial needs are taken care of. ^a	0.050	−0.012	0.059	−0.050	<u>0.763</u>	−0.094
I don’t want my child to have to worry about finances and how much his/her expenses cost. ^a	−0.057	0.038	−0.063	−0.036	<u>0.710</u>	0.074
I am happy to do chores for my child such as cooking, cleaning, and laundry when possible. ^a	0.058	0.002	0.009	0.075	<u>0.591</u>	0.013
I frequently consult teachers on my child’s academic progress.	−0.002	0.025	−0.036	−0.018	−0.090	<u>0.704</u>
I make every effort to raise my child’s academic result.	0.022	−0.034	0.013	0.009	0.032	<u>0.687</u>
I pay great attention to my child’s examinations.	−0.006	0.006	0.031	0.024	0.069	<u>0.657</u>
Eigenvalues	5.568	3.007	1.877	1.576	1.362	1.311
Variance explained (%)	21.050	10.108	5.812	4.648	3.667	3.544
Total variance explained (%)	48.830					

Bold and underlined numbers represent loadings on the host factor

AAM advice/affect management, APS anticipatory problem solving, IS information seeking, CSD child self-direction, TA tangible assistance, EAP emphasis on academic performance

^aThese items were excluded in the final scale as they either showed poor loadings or contained fewer than three items in the Study 2 CFA results

secondary vocational education, and 33.1% had high school education or below. Children’s mean age was 17.84 years (SD = 1.23), with 231 males and 230 females. Youth varied in grade level, with 28% in second year of high school, 26% in third year of high school, 29.3% in first year of college, and 16.7% in second year of college. Among children with siblings, 68.72% were the eldest, 19% were youngest, and 12.30% were a middle child. Students lived with mothers (62%), in a dormitory (32.5%), with another adult/family member (2%), with another student (1.7%), on their own (1.1%), or other arrangements (0.7%).

Procedure

Participants were recruited from the Sojump.com survey platform. The procedures were identical to Study 1. The survey took an average of 23.30 min to complete.

Measures

We conducted translation and back translation when no pre-existing translations existed.

Helicopter parenting

We used the 24-item, six-factor measure generated in Study 1. Participants responded on a six-point scale ranging from “1 = strongly disagree” to “6 = strongly agree”. Reliabilities were acceptable for subscales (α s ranging from 0.752 to 0.890) and the total scale ($\alpha = 0.860$).

Helicopter parenting behaviors

We used the 9-item Helicopter Parenting subscale from the Helicopter Parenting Behaviors measure (HPB; Schiffrin et al., 2014) for concurrent validation of the new measure. Items were reworded for parents. A sample item is “If my child is having an issue with his/her peer, I would try to intervene”. Participants responded on a seven-point Likert scale (“1 = strongly disagree”, “7 = strongly agree”). Internal consistency was acceptable, $\alpha = 0.774$.

Parenting styles

The 30-item Parental Authority Questionnaire (PAQ; Buri, 1991) measured Baumrind’s (1971) permissive, authoritarian, and authoritative parental prototypes. Scale items were reworded to create a parent version. Sample items are “While my child was growing up I felt that, in a well-run home, s/he should have her/his way in the family as often as I do” (permissive), “Even if my child doesn’t agree with me, I feel that it is for his/her own good if he/she is forced to conform to what I think is right” (authoritarian), and “Once family policy has been established, I discuss the reasoning behind the policy with my child” (authoritative). Responses were scored on a five-point scale (“1 = strongly disagree”, “5 = strongly agree”). Internal reliabilities were acceptable (α s ranging from 0.707 to 0.867).

Behavioral control

Behavioral control was assessed using five items developed by Padilla-Walker and Nelson (2012), assessing parent’s control over child’s friends, money, or activities. Scale items were reworded to create a parent version. A sample item is, “I try to limit or control who my child’s friends are.” Responses ranged from “1 = not at all like me” to “5 = a lot like me”. The scale had good reliability, $\alpha = 0.837$.

Emotional support

Emotional support was assessed using the 19-item support subscale from the Network of Relationship Inventory (NRI; Furman and Buhrmester, 1985). A sample item is “Do you admire and respect your child?” The response scale ranged

from “1 = little or not at all” to “5 = the most/could not be more”. Reliability was acceptable, $\alpha = 0.878$.

Parental anxiety

Parental Anxiety was assessed using the same seven items from the Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith, 1983) that were used by Segrin et al. (2013). Participants reflected on feelings in the past week. Items such as, “I feel restless as if I have to be on the move” are scored on a four-point scale (“1 = not at all” to “4 = very often”). The internal consistency for this scale was $\alpha = 0.748$.

Analyses

The first-order and higher-order, 24-item HP model was subjected to Confirmatory Factor Analysis (CFA) in Mplus (version 4; Muthén and Muthén, 2006), using maximum likelihood estimation. Separate CFAs were first examined for mothers of high school and college students. Invariance tests then compared model fit when factor loadings were unconstrained vs. constrained between groups. A configural invariance model was first tested to examine the first-order, six-factor structure. A metric invariance test then examined factor loading equivalence. We then examined the higher-order model to see if the covariances of the first-order factors and second-order factors could be meaningfully compared.

Chi-square difference tests of between-group invariance are overly-sensitive to sample size and violations of normality assumptions (Chen, 2007). In comparing the models, examining whether adding constraints resulted in significant deterioration of model fit was therefore based on Chen’s (2007) criteria using a decrease in CFI ≥ 0.01 , supplemented by increases in RMSEA ≥ 0.015 as indicators. When the model structure was confirmed, bivariate correlations were tested in SPSS to assess the concurrent validity of the measure.

Results

Separate CFAs For Mothers of High School and College Students

An initial high-school-sample CFA showed adequate model fit according to Kline’s (2011) criteria, $\chi^2(237) = 484.255$ ($p < 0.001$), CFI = 0.900, RMSEA = 0.065, SRMR = 0.065. After adding two item correlations according to modification indices, model fit improved: $\chi^2(235) = 457.649$ ($p < 0.001$), CFI = 0.910, RMSEA = 0.062, SRMR = 0.064. A higher-order model was then

tested. Child Self-Direction loaded poorly on the higher-order latent factor (-0.340 , $p < 0.001$). After removing this factor, the higher-order model fit improved: $\chi^2(163) = 285.160$ ($p < 0.001$), CFI = 0.940, RMSEA = 0.055, SRMR = 0.051. All item loadings were sufficient (≥ 0.444), as were second-order factor loadings (≥ 0.564).

We then examined the initial six-factor model for mothers of college students. The initial fit was acceptable but one item (“If I see that my child is feeling badly I try to cheer him/her up.”) showed poor loading on the Advice/Affect Management dimension (0.261, $p < 0.001$). After removing this item, the model showed acceptable fit: $\chi^2(215) = 354.524$ ($p < 0.001$), CFI = 0.934, RMSEA = 0.055, SRMR = 0.064. A higher-order model was then tested. Child-Self-Direction loaded poorly on the total latent factor (-0.144 , $p = 0.083$). After removing this factor, the higher-order model fit was satisfactory: $\chi^2(147) = 264.839$ ($p < 0.001$), CFI = 0.936, RMSEA = 0.061, SRMR = 0.063. All item loadings were sufficient (≥ 0.438), as were second-order factor loadings (≥ 0.626).

Multi-Group Model Invariance

We examined the five-factor solution generated from the separate CFAs, with factor loadings, intercepts, and residual variances allowed to vary between mothers of high school and college students. Fit was acceptable, $\chi^2(284) = 511.089$ ($p < 0.001$), CFI = 0.941, RMSEA = 0.059, SRMR = 0.051. This was considered our basic unconstrained model (M0). Metric invariance was tested by constraining factor loadings simultaneously across the two groups (M1), $\chi^2(298) = 534.724$ ($p < 0.001$), CFI = 0.938, RMSEA = 0.059, SRMR = 0.062. We then tested latent factor covariance invariance (M2), $\chi^2(308) = 557.007$ ($p < 0.001$), CFI = 0.935, RMSEA = 0.059, SRMR = 0.074. The indicator changes from M0 to M1 ($\Delta\text{CFI} = -0.003$, $\Delta\text{RMSEA} = 0.000$), and from M1 to M2 ($\Delta\text{CFI} = -0.003$, $\Delta\text{RMSEA} = 0.000$) were minimal according to Chen’s (2007) criteria, suggesting that the factor loadings and factor correlations between the two groups could be constrained. Therefore, the model was considered to be at the level of factor covariance invariance.

Initial fit of a higher-order invariance model (HM0) was acceptable, $\chi^2(294) = 549.350$ ($p < 0.001$), CFI = 0.933, RMSEA = 0.061, SRMR = 0.058. We tested metric invariance with the first-order and second-order loadings constrained (HM1), $\chi^2(308) = 574.251$ ($p < 0.001$), CFI = 0.930, RMSEA = 0.061, SRMR = 0.067. The fit changes from HM0 to HM1 ($\Delta\text{CFI} = -0.003$, $\Delta\text{RMSEA} = 0.000$) were minimal. Therefore, the HM1 was considered to be acceptable with our sample. All item loadings were sufficient (≥ 0.558), as were latent second-order factor loadings (≥ 0.554). These results suggest that the

higher-order with five sub-dimensions was invariant between mothers of high school and college students.

Bivariate Correlations

Bivariate correlations are shown in Table 2. The HP total and five subscale scores were positively correlated with Schiffrin et al. (2014) Helicopter Parenting Behavior scale, as well as with behavioral control (except for Advice/Affect Management). Correlations between anticipatory problem solving and emotional support, information seeking and emotional support, and advice/affect management and parental anxiety were not significant. The other subscales and total score were positively related with emotional support and parental anxiety. The HP total score was positively correlated with all three parenting styles. Permissive parenting was positively correlated with anticipatory problem solving and tangible assistance. Authoritarian parenting was positively correlated with anticipatory problem solving, information seeking, tangible assistance, and emphasis on academic performance. Authoritative parenting was positively correlated with advice/affect management, tangible assistance, and emphasis on academic performance.

Study 3

Study 3 examined factor structure, construct invariance, and convergent and concurrent validity with mother-adolescent dyads. Study 2 suggested that the child self-direction subscale should be excluded due to poor loading on the higher-order HP factor, and negative or non-significant correlations with the total scale and other subscales (cf. Segrin et al., 2015). We still included this subscale in Study 3, however, to gather more evidence about whether it should be removed in the final measure. Regarding convergent and concurrent validity of our Chinese HP scale, we expected positive correlations with Schiffrin et al. (2014) Helicopter Parenting Behaviors scale, as well as with mother- and adolescent-reported behavioral and psychological control, and emotional support. We also expected negative relations with adolescents’ feelings of self-efficacy.

Method

Participants

Participants included mother and child dyads recruited from two public high schools in Shenzhen, Guangdong province. A total of 435 students in the last 2 years of study (Senior 2 and 3) completed paper surveys. Additionally, 276 of students’ mothers (63.45%) completed an online survey, with

Table 2 Means and bivariate correlations (Study 2)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Helicopter parenting total measure	0.619**													
2. Advice/affect management	0.839**	0.373**												
3. Anticipatory problem solving	0.813**	0.408**	0.564**											
4. Information seeking	0.661**	0.233**	0.498**	0.403**										
5. Tangible assistance	0.681**	0.356**	0.428**	0.548**	0.284**									
6. Emphasis on academic performance	-0.205**	-0.368**	-0.041	-0.189**	-0.079	-0.149**								
7. Child self-direction	0.616**	0.321**	0.475**	0.574**	0.317**	0.563**	-0.061							
8. Helicopter parenting behaviors	0.140**	0.070	0.126**	0.051	0.218**	0.040	-0.254**	0.145**						
9. Permissive parenting	0.419**	0.053	0.408**	0.404**	0.230**	0.375**	0.090	0.539**	0.330**					
10. Authoritarian parenting	0.142**	0.258**	0.003	0.088	0.144**	0.103*	-0.331**	0.145**	0.325**	-0.068				
11. Authoritative parenting	0.317**	0.079	0.275**	0.332**	0.100*	0.350**	0.040	0.511**	0.227**	0.659**	0.073			
12. Behavioral control	0.197**	0.271**	0.085	0.089	0.240**	0.092*	-0.200**	0.104*	0.231**	-0.152**	0.445**	-0.022		
13. Emotional support	0.149**	-0.016	0.148**	0.164**	0.104*	0.112*	0.036	0.189**	0.089	0.265**	-0.052	0.300**	-0.033	
14. Parental anxiety	4.306	4.977	3.698	4.175	3.991	4.485	2.166	4.830	33.315	27.143	40.228	2.482	3.414	1.857
Mean	0.715	0.617	1.284	1.005	1.092	0.939	0.697	0.848	4.611	6.831	3.953	0.786	0.627	0.445
SD														

The poor-loading item in advice/affect management subscale and the child self-direction subscale were not included in the helicopter parenting total scale scores. * $p < 0.05$; ** $p < 0.01$

the same inclusion criteria as in Study 1. Students aged beyond 15–19 were excluded. Eight mothers provided incorrect information and could not be matched to a student. Thus, a total of 408 students and 248 mothers were retained.

The mean age of the 408 students (54.1% female) was 17.37 years ($SD = 0.753$), among which 64.5% were Senior 2 and 35.5% were Senior 3. Most students (69.2%) had siblings, with 48.6% being the eldest, 34% the youngest, and 17.4% a middle child. Most students (74.9%) lived in a dormitory, 21.4% lived with parents, and 3.7% in other arrangements. The mean age of the 248 mothers was 44.29 years ($SD = 3.776$), of whom 95.6% were married, 4% were divorced, and 0.4% were widowed. Half (50.8%) had junior or senior high school education, and 22.2% had received junior college education. An additional 10.9% had an undergraduate or graduate degree, 6.5% had secondary vocational education, and 9.7% had primary school education or below.

To examine potential sample bias related to mother participation, we conducted *T*-tests for samples with and without mother’s participation. There were no significant differences between participating and non-participating mothers in terms of age or educational level (as reported by students). However, students whose mothers participated ($M_{age} = 17.284$, $SD = 0.711$) were slightly younger than those whose mothers did not participate ($M_{age} = 17.521$, $SD = 0.820$), $t = 3.037$, $p = 0.003$. Chi-square tests showed no differences in whether students were only children, but the number of girls whose mothers participated (63.3%) was significantly greater than the number of boys (36.7%), $\chi^2(1) = 19.410$, $p < 0.001$.

Procedure

School administrators notified parents and provided surveys to students. Participation was voluntary. Each student was given an invitation flyer for their mothers. Students completed the survey during school hours, and mothers completed it online. Dyads were assigned a unique identification number that facilitated matched responses. The student survey took 10–15 min to complete. Mothers took an average of 22.58 min ($SD = 16.391$) to complete their survey. Students received a small stationery gift after completing the questionnaire.

Measures

We conducted translation and back translation when no Chinese versions existed. The following measures were completed by both mothers and students:

Helicopter parenting measure

The 23-item scale generated from Studies 1 and 2 was used. Items were reworded to create a student version. The

mother-reported subscale and total scale reliabilities were acceptable, $\alpha \geq 0.676$ (see Table 2). With the exception for child self-direction ($\alpha = 0.579$) and tangible assistance ($\alpha = 0.612$), student reliabilities were also acceptable, $\alpha \geq 0.807$.

Helicopter parenting behaviors

The nine-item Helicopter Parenting scale by Schiffrin et al. (2014) was again used for concurrent validation. Items were reworded for the parent version. Participants responded on a seven-point Likert scale (“1 = *strongly disagree*”, “7 = *strongly agree*”). The HPB had an acceptable internal consistency, with $\alpha = 0.775$ for mothers and 0.756 for adolescents.

Behavioral control

Behavioral control was again assessed using the five items from Padilla-Walker and Nelson (2012). Scale items were reworded to create a parent version. Responses ranged from “1 = *not at all like me*” to “5 = *a lot like me*”. The scale had good reliability for mothers ($\alpha = 0.816$) and adolescents ($\alpha = 0.809$).

Emotional support

Emotional support was again assessed using the 19-item support subscale from the Network of Relationship Inventory (NRI; Furman and Buhrmester, 1985). Items were reworded for students (e.g., “Does your mother admire and respect you?”). Responses ranged from “1 = *little or not at all*” to “5 = *the most/could not be more*”, and showed acceptable reliability for mothers ($\alpha = 0.862$) and adolescents ($\alpha = 0.902$).

The following measures were completed by students:

Psychological control

Psychological control was assessed with four items from Padilla-Walker and Nelson (2012). The scale assessed youth’s perceptions of invalidation, constraining expression, personal attack, and love withdrawal. A sample item is “My mother brings up past mistakes when she criticizes me.” Responses were scored from “1 = *Not like her at all*”, to “5 = *A lot like her*”. The scale had adequate reliability ($\alpha = 0.778$).

General self-efficacy

General self-efficacy was assessed using the scale from Sherer et al. (1982). Only five items with factor loadings above 0.600 in the original article were used, in order to

meet survey length limits set by school administrators. A sample item is “I give up on things before completing them (reversed).” Responses ranged from “1 = *strongly disagree*” to “5 = *strongly agree*”. Reliability was acceptable ($\alpha = 0.863$).

Analyses

The 23 items were subjected to CFA in Mplus (version 4; Muthén and Muthén, 2006) with maximum likelihood estimation. The six-factor model was initially employed, after which a higher-order model was examined loadings on a latent HP factor. The mother sample was first examined to compare with Study 1 and 2. The adolescent sample was then examined, using mother results as a foundation. Invariance tests compared model fit when factor loadings were unconstrained vs. constrained between mothers and adolescents. The procedure for invariance tests was the same as Study 2; both configural and metric invariance were examined, and both first-order and second-order factor models were examined sequentially, across dyads. When the model structure was confirmed, bivariate correlations tested in SPSS addressed the concurrent validity of the measure.

Results

Separate CFAs For Mothers and Adolescents

The mother CFA showed unsatisfactory fit, with $\chi^2 (215) = 442.178$ ($p < 0.001$), CFI = 0.895, RMSEA = 0.065, SRMR = 0.066. After adding one item correlation according to modification indices, the fit was acceptable: $\chi^2 (214) = 376.513$ ($p < 0.001$), CFI = 0.925, RMSEA = 0.055, SRMR = 0.064. A higher-order model then showed that the child self-direction loaded poorly on the total latent factor (-0.321 , $p < 0.001$), similar to the results of Study 2. After removing this dimension, the higher-order model fit was acceptable: $\chi^2 (146) = 267.200$ ($p < 0.001$), CFI = 0.935, RMSEA = 0.058, SRMR = 0.061. All item loadings were sufficient (≥ 0.532), as were loadings on the latent second-order factor (≥ 0.534).

We then examined this five-factor model for adolescents. The fit was not acceptable: $\chi^2 (142) = 381.808$ ($p < 0.001$), CFI = 0.871, RMSEA = 0.083, SRMR = 0.074. Three item correlations were added according to modification indices, and results further suggested the tangible assistance factor should be excluded, as one of its items had a low loading (0.397, $p < 0.001$) and at least three items were required. All factors were correlated ($r \geq 0.291$, $p < 0.001$), except that tangible assistance was not related to information seeking or emphasis on academic performance. Thus, tangible assistance was excluded. The four-factor model showed a good

fit: $\chi^2(95) = 206.673$ ($p < 0.001$), CFI = 0.933, RMSEA = 0.069, SRMR = 0.062. A higher-order model was then tested and showed acceptable fit: $\chi^2(97) = 218.644$ ($p < 0.001$), CFI = 0.927, RMSEA = 0.071, SRMR = 0.071. All item loadings were sufficient (≥ 0.627), as were loadings on the latent second-order factor (≥ 0.469).

Mother-Adolescent Invariance

An initial CFA with the four-factor solution with unconstrained factor loadings, intercepts, and residual variances showed unsatisfactory fit, $\chi^2(436) = 814.579$ ($p < 0.001$), CFI = 0.891, RMSEA = 0.059, SRMR = 0.060. With three sets of within-factor error correlations added according to modification indices, the fit improved: $\chi^2(430) = 730.032$ ($p < 0.001$), CFI = 0.914, RMSEA = 0.053, SRMR = 0.060. Therefore, this model was considered as our basic unconstrained model (M0).

Metric invariance was tested by constraining factor loadings simultaneously across mothers and adolescents (M1), $\chi^2(442) = 753.945$ ($p < 0.001$), CFI = 0.910, RMSEA = 0.053, SRMR = 0.065. We then tested latent factor covariance invariance (M2), $\chi^2(448) = 767.007$ ($p < 0.001$), CFI = 0.908, RMSEA = 0.054, SRMR = 0.069. The sequential decreases in CFI and RMSEA from M0 to M2 were minimal. The model was therefore considered to be at the level of factor covariance invariance.

A higher-order invariance model (HM0) that included the same three error correlations as in the four-factor invariance model showed acceptable fit, $\chi^2(449) = 775.603$ ($p < 0.001$), CFI = 0.906, RMSEA = 0.054, SRMR = 0.072. We tested the metric invariance model with the item loadings on the four factors constrained (HM1), $\chi^2(461) = 799.076$ ($p < 0.001$), CFI = 0.903, RMSEA = 0.054, SRMR = 0.077. We then further constrained loadings onto the HP factor (HM2), $\chi^2(464) = 802.820$ ($p < 0.001$), CFI = 0.903, RMSEA = 0.054, SRMR = 0.078. The sequential decreases in CFI and RMSEA from HM0 to HM2 were minimal, suggesting that all the factor loadings could be constrained. Therefore, HM2 was considered to be acceptable. The final model is shown in Fig. 1. The Chinese version of the final parent-reported scale is shown in Appendix I.

Mean Scores, Reliabilities, and Correlations

Mean scores and reliabilities for the HP total and subscales are shown in the Table 3. We excluded the child self-direction and tangible assistance subscales when computing the total HP mean scores. Paired samples *t*-tests showed that mothers' scores were higher than adolescents' scores on the total HP Measure and all subscales (*t*s between 3.718 and 7.230, $p < 0.001$).

Within-respondent correlations are shown in Table 4. Total and subscale scores were positively associated with Schiffrin et al. (2014) Helicopter Parenting Behaviors scale for both mothers and adolescents. Most of the HP scores were positively correlated with behavioral control and emotional support. Adolescent-reported psychological control was positively correlated with emphasis on academic performance and negatively correlated with advice/affect management. Adolescents' self-efficacy showed no significant correlations.

Between-respondent correlations are shown in Table 5. For each scale, adolescent reports were positively linked with mother reports. Mother-reported behavioral control was not related with adolescent-reported HP but was negatively related with adolescent-reported advice/affect management, and positively related with adolescent-reported information seeking and emphasis on academic performance. Mother-reported emotional support was positively related with adolescent-reported HP, advice/affect management, and information seeking. Adolescent-reported behavioral control was positively related to mother-reported HP, information seeking, and emphasis on academic performance. Notably, adolescent-reported emotional support was negatively correlated with mother-reported HP, anticipatory problem solving, and information seeking. Adolescent-reported psychological control was positively linked with mother-reported emphasis on academic performance. Adolescent self-efficacy was negatively correlated with mother-reported information seeking.

General Discussion

We explored the structure and construct validity of a Chinese HP measure among mother and youth samples. EFA and CFA across three studies suggested a 16-item, four-factor model that was equivalent for Chinese mothers and adolescents. The four dimensions (advice/affect management, anticipatory problem solving, information seeking, and emphasis on academic performance) loaded onto a higher-order HP factor. The validity of the HP measure was further supported by correlations with a variety of measures in Studies 2 and 3. In line with previous suggestions (Pomerantz and Wang, 2009), the general pattern of correlations suggests that HP is potentially less problematic for youth in the Chinese context than it is in Western cultures.

Evidence for the Structure of HP in Mainland China

The HP construct among Mainland Chinese mother-youth dyads included four subscales, supporting a multidimensional structure with factors found in previous Western studies, as well as one dimension previously suggested

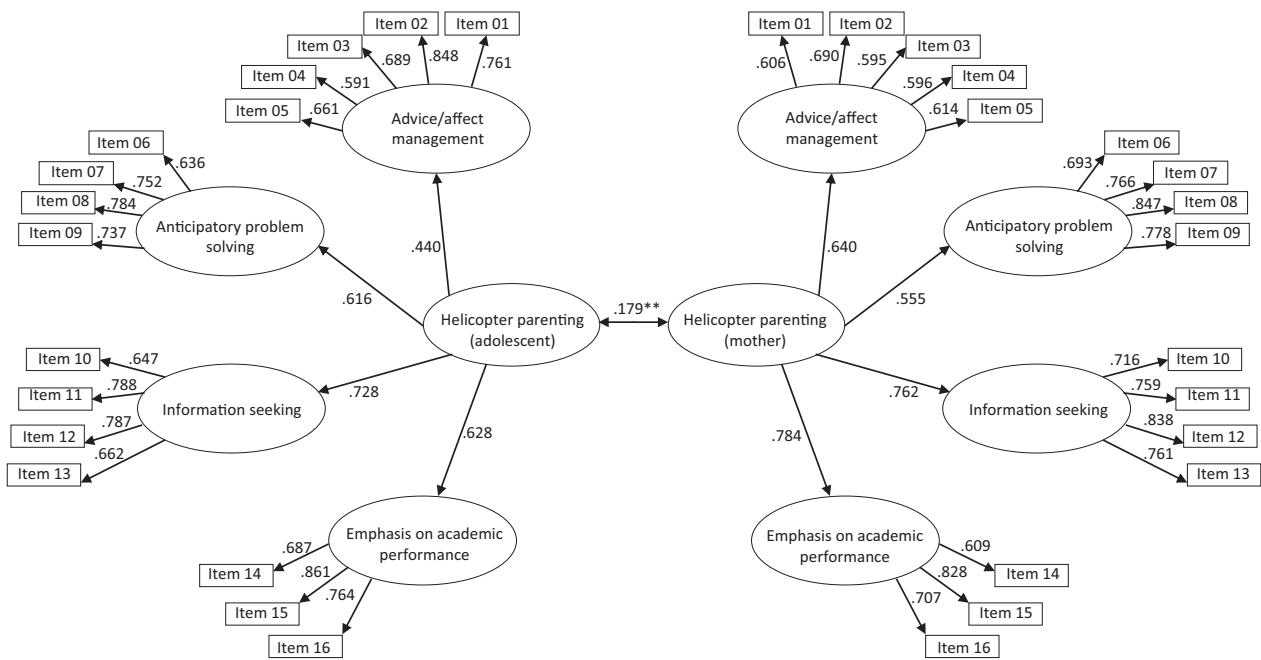


Fig. 1 Invariance Model for the Helicopter Parenting Measure (Study 3). Note. Both reporters received modified versions of the same items. The child self-direction subscale and tangible assistance subscale were not

included in the final model. Model fit: $\chi^2 = 802.820$, $df = 464$, $CFI = 0.903$, $RMSEA = 0.054$, $SRMR = 0.078$. $**p < 0.01$

Table 3 Mean scores and reliabilities for the Helicopter Parenting measure (Study 3)

Measure	Mother ^a			Adolescent ^b		
	M	SD	Cronbach's alpha	M	SD	Cronbach's alpha
Helicopter parenting measure	4.234	0.718	0.878	3.760	0.719	0.837
Advice/affect management	4.901	0.693	0.787	4.340	0.942	0.834
Anticipatory problem solving	3.392	1.254	0.868	2.958	1.076	0.823
Information seeking	4.154	1.037	0.854	3.699	1.093	0.814
Emphasis on academic performance	4.351	0.958	0.732	3.924	1.193	0.807

The child self-direction subscale and tangible assistance subscale were not included when calculating the helicopter parenting (total) measure score

^aN = 248

^bN = 408

to be a “unique” dimension of Chinese HP. Factors were all modestly or moderately correlated.

Initial EFA results in Study 1 suggested a six-factor model, including all four dimensions of Segrin et al., 2012 scale (advice/affect management, anticipatory problem solving, child self-direction, and tangible assistance), one dimension of Luebbe et al. (2018) scale (information seeking), and one dimension of Leung and Shek’s (2018) scale (emphasis on academic performance). However, two factors of Segrin et al., 2012 scale (child self-direction and tangible assistance) were ultimately excluded according to the CFAs and factor intercorrelations in Studies 2 and 3. Among mothers, we found poor loadings for child self-direction in CFAs conducted in Studies 2 and 3, which was consistent with some previous Western research (Segrin,

Woszidlo et al., 2012; Segrin, Givertz et al., 2015). Luebbe et al. (2018) also reported that the reliability of their autonomy limiting subscale decreased significantly after controlling for general HP, and Schiffrin et al. (2014) separated a factor indexing autonomy support from items that indexed HP. Across studies, autonomy limiting/self-direction covaries inconsistently with other HP dimensions. This might be particularly the case for Chinese mothers, whose autonomy-limiting behaviors might be more uniformly present (Qin et al., 2009). This could make autonomy restriction a less distinctive feature of Mainland Chinese HP than it might be in Hong Kong (e.g., Leung and Shek, 2018) or in Western cultures. Therefore, instead of our results implying that autonomy limiting is absent in the Chinese HP context, it seems more likely that Chinese HP

Table 4 Bivariate Correlations for Adolescents and Mothers (Study 3)

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Helicopter parenting measure		0.670**	0.784**	0.788**	0.684**	-0.148*	0.421**	0.515**	355**	0.136*	-
2. Advice/affect management	0.670**		0.316**	0.373**	0.383**	-0.314**	0.254**	0.317**	0.054	0.212**	-
3. Anticipatory problem solving	0.689**	0.317**		0.456**	0.347**	0.094	0.388**	0.291**	0.310**	0.079	-
4. Information seeking	0.681**	0.198**	0.256**		0.461**	-0.090	0.330**	0.446**	0.314**	0.009	-
5. Emphasis on academic performance	0.659**	0.214**	0.276**	0.400**		-0.246**	0.224**	0.523**	0.361**	0.138*	-
6. Child self-direction	0.011	-0.222**	0.142**	0.092	0.032		-0.021	-0.028	0.135*	-0.265**	-
7. Tangible assistance	0.257**	0.300**	0.184**	0.100*	0.075	-0.233**		0.165**	0.021	0.247**	-
8. Helicopter parenting behaviors	0.640**	0.369**	0.297**	0.502**	0.592**	0.071	0.052		0.544**	0.159*	-
9. Behavioral control	0.332**	-0.012	0.205**	0.322**	0.434**	0.288**	-0.233**	0.554**		-0.120	-
10. Emotional support	0.415**	0.655**	0.130**	0.173**	0.097	-0.437**	0.411**	0.186**	-0.210**		-
11. Psychological control	0.016	-0.193**	0.034	0.094	0.141**	0.211**	-0.313**	0.239**	0.441**	-0.298**	-
12. General self-efficacy	-0.005	0.040	-0.073	-0.033	0.064	-0.238**	0.020	-0.047	-0.123*	0.125*	-0.076

Correlations for mothers are shown above the diagonal, and adolescents below the diagonal. The two subscales (child self-direction and tangible assistance) were not included in the helicopter parenting total scale scores. Only adolescents reported on the psychological control and the general self-efficacy measure. * $p < 0.05$; ** $p < 0.01$. Sample size for adolescents = 408. Sample size for mothers = 248

occurs in a family environment where autonomy limiting already exists. Additionally, the tangible assistance factor loaded onto the general latent factor for mothers (Studies 2 and 3), but only two of the three items loaded adequately onto this factor for adolescent reports (Study 3), which is not sufficient for constructing a subscale. Youth might view instrumental support (e.g., doing household chores) as mothers’ “obligations”, and take these behaviors for granted. As our aim was to develop a measure that has the same structure for mothers and adolescents, tangible assistance was not considered further. Future research interested in mothers’ perspectives could still potentially include this dimension, however. The fact that child self-direction and tangible assistance often were not significantly correlated with other subscales in Study 3 further supported their exclusion from the final scale.

The emergence of HP dimensions like advice/affect management is consistent with previous research (Segrin et al., 2012), and supports the proposition that HP includes some parenting behaviors that, on their own, might be normative and helpful. The fact that advice/affect management showed the highest amount of explained variance for mother-reported HP (Study 1) suggests that this dimension explained a foundational set of mother-perceived HP behaviors in China. Measurement invariance results showed that this dimension loaded equivalently with other dimensions on the higher-order HP factor for mother reports, while it showed substantially lower loadings than other dimensions for adolescent reports (Study 3). Mothers likely consider other dimensions, such as anticipatory problem solving, as reasonable extensions of their support. Youth, on the other hand, might more clearly differentiate behaviors they consider to be “truly supportive” from those that represent over-functioning. Advice/affect management, alone, seems to be a normative practice that reflects mothers’ guidance and emotional support. It might be the extreme level of this support, or when it is combined with other dimensions typically framed as overinvolvement in the HP literature, that shifts this guidance into the realm of being problematic. Our research did not focus on whether it is the excessive level or the combination of HP dimensions that makes such behaviors inappropriate. Future research could compare these two interpretations by examining different profiles of HP behaviors and/or controlling for the co-occurrence of other dimensions. The multi-dimensional nature of our scale makes such investigations feasible. Overall, HP is a concise way to describe a combination of normative and over-involved parenting behaviors that might be particularly incompatible with the developmental tasks of late adolescence and emerging adulthood.

Notably, we found only one of the two “unique” Chinese HP features identified in Leung and Shek’s (2018) previous research in Hong Kong, namely emphasis on academic

Table 5 Bivariate correlations between adolescent and mother reports (Study 3)

	Mother-Reported									
	1	2	3	4	5	6	7	8	9	10
Adolescent-Reported										
Helicopter parenting measure	0.179**	0.202**	0.055	0.132*	0.186**	-0.056	0.030	0.221**	0.070	0.202**
2. Advice/affect management	-0.023	0.135*	-0.092	-0.047	-0.027	-0.017	0.070	0.107	-0.139*	0.227**
Anticipatory problem solving	0.171**	0.104	0.132*	0.152*	0.111	-0.008	0.030	0.115	0.064	0.047
Information seeking	0.217**	0.173**	0.081	0.215**	0.207**	-0.059	0.036	0.203**	0.144*	0.167**
Emphasis on academic performance	0.145*	0.155*	0.040	0.043	0.261**	-0.079	-0.069	0.193**	0.154*	0.116
Child self-direction	0.203**	0.078	0.136*	0.228**	0.149*	-0.055	0.054	0.090	0.085	-0.057
7. Tangible assistance	-0.006	0.010	0.072	-0.040	-0.104	0.068	0.152*	0.005	-0.106	0.118
Helicopter parenting behaviors	0.137*	0.139*	0.015	0.118	0.185**	0.014	-0.014	0.300**	0.176**	0.055
Behavioral control	0.125*	0.114	-0.021	0.141*	0.198**	-0.067	0.020	0.136*	0.197**	-0.086
10. Emotional support	-0.128*	0.038	-0.136*	-0.153*	-0.100	0.104	-0.011	0.029	-0.150*	0.289**
Psychological control	0.056	0.041	-0.017	0.054	0.127*	-0.062	-0.129*	0.022	0.172**	-0.110
12. General self-efficacy	-0.111	-0.011	-0.103	-0.161*	-0.017	-0.038	-0.149*	-0.118	-0.167**	-0.034

The two subscales (child self-direction and tangible assistance) were not included in the helicopter parenting total scale scores. Only adolescents reported on the psychological control and the general self-efficacy measure. * $p < 0.05$; ** $p < 0.01$. Sample size = 248

performance. This factor likely reflects the Chinese cultural belief that ensuring youth achievement is a moral obligation, as well as parents’ personal concerns about being supported by their children later in life. The other factor, frequent comparison of children’s achievements with peers, did not emerge. This could be due to mothers’ poorer insight into such behavior, compared to the youth reporters in Leung and Shek’s (2018) study. We also cannot be sure that emphasis on academics is truly culturally specific without a cross-cultural study. Our measure is nevertheless a useful tool for examining HP with Chinese samples, and might also be applied in future cross-cultural research.

Correlates with Other Parenting Constructs, Parental Anxiety, and Youth Self-Efficacy

We examined the HP measure’s correlations with another HP scale, three parenting styles, behavioral control, psychological control, emotional support, parental anxiety, and youth self-efficacy. The current HP total and subsfactor scores all had positive, modest-to-moderate associations with the Helicopter Parenting Behaviors measure (HPB; Schiffrin et al., 2014). Within reporters, the HP total score was also modestly associated with behavioral control and emotional support, but not related with psychological control. While this latter finding did not align with previous Hong Kong research (Leung and Shek, 2018), these results also generally imply that HP is distinct from emotional support or parental control, and is largely interpreted as supportive in the Chinese cultural context. The idea that controlling parents were implicitly showing love and concern might have made some youth less adverse to these behaviors, while others felt more negative toward the same practices.

The HP total score also showed moderate positive associations with authoritarian, authoritative, and permissive parenting styles. The overall correlational patterns suggested that HP could potentially co-exist with each of these parenting styles, but perhaps be enacted for different reasons. For example, authoritarian parents’ demands for perfection might promote some HP behaviors, while more permissive parents might use HP to maintain relational closeness and fulfill children’s needs. Notably, the positive correlations of HP scores with authoritative parenting also suggest that some aspects of HP might operate as part of normative and adaptive parenting, and might potentially be beneficial for youth functioning. Overall, modest relations between the HP dimensions and parenting styles implied that HP is a distinct construct from these ‘classic’ parenting styles.

Associations between individual HP subscales and other parenting constructs revealed the complexity of Chinese HP. Practices such as anticipatory problem solving,

information seeking, and emphasis on academics might reflect the maladaptive side of HP, as these subscales showed moderate positive relationships with authoritarian parenting in Study 2. Mother-reported total HP, anticipatory problem solving, and information seeking also showed negative associations with emotional support in Study 3. Parental over-protection is associated with youth's decreased sense of autonomy and increased depressive symptoms (Oldehinkel et al., 2006). Overt or covert forms of monitoring also predict perceptions of privacy invasion and family communication difficulties among Chinese youth (Hawk, 2017). These behaviors might be more problematic and developmentally inappropriate for adolescents and emerging adults. Importantly, emphasis on academic performance was seemingly viewed as both controlling and emotionally supportive. Chinese mothers and youth consider academic performance as an important aspect in development, and intensive attention to school success might represent parent's love and concern while perhaps also easily crossing into parental over-functioning.

In contrast, within-respondent correlations in Studies 2 and 3 showed that advice/affect management might be less problematic or even more adaptive than the other subscales, in terms of positive links with mother- and youth-reported emotional support across Studies 2 and 3. All subscales except for advice/affect management showed positive correlations with behavioral control (Studies 2 and 3). Consistent with previous findings (Segrin et al., 2012), mother-reported advice/affect management was also modestly and positively associated with authoritative parenting, but not correlated with authoritarian or permissive parenting in Study 2. Youth-reported advice/affect management was modestly and negatively associated with psychological control, while the other scales showed no associations, or even positive associations, with psychological control in Study 3. Overall, our multi-dimensional HP measure revealed that the Chinese HP is complex and includes both controlling and supportive aspects. Over-protective and surveillance practices in Chinese HP might be more problematic for youth development than guidance, encouragement, and academic support practices.

We gathered further evidence for validity via links between HP and parental anxiety and youth self-efficacy, respectively. Consistent with previous suggestions that parental anxiety is a likely antecedent of HP (Segrin et al., 2013), all HP total and subscale scores except for advice/affect management were positively correlated with parental anxiety (Study 2). Anxious parents might be motivated to protect children from risks or be particularly worried about children's success and happiness, and utilize HP practices to resolve these concerns. Inconsistent with some previous HP studies (Bradley-Geist and Olson-Buchanan 2014; Leung and Shek, 2018), links between adolescents' self-efficacy

and HP scores were not significant, except for one negative correlation with mother-reported information seeking in Study 3 (but see Segrin et al., 2012). The results suggest that Chinese HP might be more weakly related with negative outcomes, compared with HP in Western contexts. It is also possible that the fact that many students resided in dormitories contributed to these non-significant results, because they might be more independent, compared to students living together with parents.

Measurement Invariance and Agreement between Reporters

A major contribution of the current research was the examination of measurement invariance and correspondence between reporters (i.e., mothers of children in different age groups and mother-child dyads). Measurement invariance between mothers of high school vs. college students suggests a consistent structure that can be used to examine maternal HP for both adolescents and emerging adults. Invariance tests across mother-adolescent dyads also suggested that the current measure is applicable to both Chinese mothers and adolescents. Although the final model fit was likely lowered somewhat by our strategy of testing invariance across parent-youth dyads, rather than the entire group of parents compared to the entire group of youth, our approach provided a stricter assessment of psychometric invariance that can benefit future research with parent-youth dyads. As suggested previously (Segrin et al., 2015), there might still be additional dimensions of HP specific to adolescent or parent respondents (e.g., Tangible Assistance). Nevertheless, identifying dimensions that are relevant to both mother and youth reports can be highly valuable for future multi-informant studies on this topic.

Mother- and youth-reported HP total and subfactor scores were all modestly and positively correlated, and all mother-reported scores were higher than youth-reported scores. Several prior studies have also observed higher parent-reported HP scores than youth-reported scores (e.g., Cui et al., 2019; Padilla-Walker and Nelson, 2012; Schiffrin and Liss, 2017; Segrin et al., 2015). This might reflect the fact that youth are not always aware of their mothers' behaviors, or do not always hold congruent interpretations with their mothers about the same HP behaviors. For example, mothers' anticipatory problem solving behaviors reflected mothers' attempts to remove any obstacles before the child encountered them, which might not be noticed by youth. Additionally, mothers might think they are offering advice and emotional support to their child, but youth might not perceive those behaviors as intended. Indeed, our results (Study 3) showed that correlations between mothers' and youth's reports on anticipatory problem solving and advice/affect management were rather modest and were lower than

the other subscales. Interestingly, the general HP scores were positively related with support in mothers' or adolescents' own reports, but cross-respondent correlations showed a different pattern. Youth-reported emotional support was negatively correlated with mother-reported general HP, while youth-reported emotional support was positively correlated with their own reports of HP. This correlational pattern also appeared for anticipatory problem solving and information seeking. These seemingly contradictory results suggest that some behaviors that mothers view as helpful might be perceived as unhelpful or overbearing by youth. This finding is important for understanding the different views of mothers and adolescents toward HP behaviors.

Practical Implications

Our findings offer several important implications for education and practice. First, the dimensions that emerged from our factor analyses could help family researchers, educators, and practitioners identify culturally-relevant signs of HP among Chinese families. Consistent with HP characteristics in Western societies, Chinese HP includes advice/affect management, anticipatory problem solving, and information seeking. However, autonomy limiting did not appear to be a clear indication of Chinese HP, potentially because it is a widely prevalent (but not necessarily beneficial) aspect of Chinese childrearing (Fulgini, 1998) that might not strongly covary with other forms of overinvolvement. Practitioners might prioritize signs of other over-involved behaviors, instead of autonomy-limiting, to identify HP in Chinese families. For example, emphasis on academic performance might be a more salient component of Chinese HP than in Western cultures (Leung and Shek, 2018). Second, our findings might be useful for identifying situations in which families might need therapy/intervention. Some HP behaviors alone (e.g., advice/affect management) might be normative or even efficacious for youth's positive development. It might be a cause for concern when parents become overly effortful in these dimensions, or when these behaviors coexist with other HP dimensions that more clearly signal parental over-functioning. Interventions might focus on promoting an optimal level of parental involvement to help their child. Finally, it is important for practitioners to be aware of mother-youth perception discrepancies regarding which HP behaviors are perceived to be helpful vs. intrusive. Our findings in Study 3 suggested that mothers consider their HP behaviors as facilitating their child's goals, while youth either might not notice some of those behaviors, or not interpret them as helpful. Behaviors that youth might not always notice (e.g., covert monitoring or anticipatory problem solving) can still predict family communication problems (e.g., Hawk, 2017). Family counselors or other agents could consider increasing

mothers' and their children's mutual understanding by encouraging them to share their perspectives on specific parenting behaviors.

Limitations and Future Directions

The current research has several limitations. First, the study examined HP behaviors from the perspectives of Chinese mothers and their late adolescent children, without addressing the perspectives of fathers. Fathers have been suggested to play complementary roles in childrearing, and Chinese fathers tend to provide care and support in a more implicit way than mothers (Chao and Tseng, 2002). It is worthwhile to explore fathers' reports on their own HP behaviors and the relations with support perceived by adolescents. Therefore, further explorations of paternal HP in Mainland China are recommended.

Second, caution should be exercised when generalizing our results to all mother-youth interactions in Mainland China. While we made an effort to obtain participants from different provinces, it is important to recognize China is a large and diverse country, with many regional differences in economic prosperity, access to educational resources, and cultural beliefs about family relationships. Mothers in Studies 1 and 2 had a higher proportion of university education, compared to national statistics (11.28%; National Bureau of Statistics, 2010). There was also a lower percentage of only children than national statistics in Study 3 (62.02%; National Bureau of Statistics, 2010). Our use of convenience sampling in Study 3 might also limit generalizability due to potential biases in geographic distribution and school type. Several improvements can be considered, such as choosing schools in both urban and rural areas, private and public schools, and schools that differ in socioeconomic status. We also suggest replicating the findings with emerging adults and their mothers. Further testing is also required to demonstrate construct invariance between adolescents and emerging adults.

Despite these limitations, the current research provides a concise, multidimensional, and multi-reporter HP measure for use in the Chinese context. Chinese helicopter mothers tend to involve themselves in youth's lives and view themselves as emotionally supportive. Adolescents also think their mothers are supportive, but might differ from mothers in terms of which behaviors promote these support perceptions. This measure of HP can be useful for examining such reporter discrepancies, as well as associations between HP and Chinese youth's psychological functioning.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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Appendix I Chinese Version of Helicopter Parenting Measure (Parent survey)

1. 我给我的孩子做事情的建议。
 2. 为了帮我的孩子完成任务,我通常给他/她一些建议。
 3. 我会告诉我的孩子如何计划某些活动。
 4. 我对孩子说一些话或者做一些事让他/她高兴起来。
 5. 我和孩子交流如何处理他/她遇到的各种情况。
 6. 我努力在我的孩子遇到问题之前为他/她解决问题。
 7. 如果我能看到我的孩子将要遇到某种困难,我会介入并在他/她遇到困难之前处理。
 8. 我努力帮我的孩子避免他/她在世界上可能遇到的任何麻烦。
 9. 我试图预测妨碍我的孩子实现目标的事,并在它变成问题之前解决。
 10. 我想知道孩子社交生活的一些细节。
 11. 我想知道孩子每日安排的细节。
 12. 我了解我的孩子每天的最新情况。
 13. 我了解我孩子的行踪的最新情况。
 14. 我经常向老师咨询我孩子的学业进展。
 15. 我尽一切努力提高孩子的学业成绩。
 16. 我非常关注孩子的考试。
 - *17. 我会注意确保我的孩子的财务需求得到了满足。
 - *18. 我不希望我的孩子担心财务状况以及他/她的花销是多少。
 - *19. 我很乐意给我的孩子做家务,比如做饭,打扫和洗衣服。
- Advice/affect management: 1-5
 Anticipatory problem solving: 6-9
 Information seeking: 10-13
 Emphasis on academic performance: 14-16
 *Tangible assistance: 17-19
 (*This subscale could be used when participants only include mothers)

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