Perceived Stress Among Chinese Families with College Students in the US: A Mixed-Methods Study

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Abstract

Existing literature on Chinese international students has primarily been interpreted through Eurocentric theories; thus, little is known about these perspectives from a culturally contextualized Chinese perspective. To address this gap, this study adopted a mixed-methods approach and explored how Chinese international college students in the US and their parents in China navigate perceived stress during the sociocultural, familial, and developmental transitions. A total of 32 students and 16 parents completed an online questionnaire; five student-parent dyads and twelve student individuals also participated in semi-structured follow-up interviews. Findings indicated that both students and parents reported moderate to low levels of perceived stress, and no statistically significant correlations between perceived stress and experiences during sociocultural transition, parent-child relationships, or parenting practices. Qualitative responses emphasized the importance of mutual support, autonomy, and open communication in managing perceived stress for both students and their parents. The findings advocate for the empowerment of families with knowledge and strategies to support their children's studying abroad experience and coping with their perceived stress. Additionally, this study underscored the need for universities to develop culturally sensitive support systems that foster an environment of open communication and autonomy for international students and their parents.

Introduction

Education equips individuals with the knowledge and skills pivotal for thriving in dynamic societies. Beyond educational institutions, families also stand as a central agent of education and socialization; in the case of international college students, enrollment decisions are closely tethered to family choices. For example, urban Chinese parents often opt to send their children to pursue higher education in foreign lands. This inclination has been driven by both *pull factors* such as aspirations for upward class mobility and enhanced career opportunities (Hazen & Alberts, 2006), and *push factors* such as perceived limitations in opportunities to study at prestigious universities in the home country (Obst & Forster, 2005). As a result, recent estimates show that 34.7% of international students in the US hail from China (Institute of International Education, 2021). This educational transition across national borders has led young adults to seek diverse forms of support from social networks in the universities/colleges and their parents who reside in China.

Despite extensive research on Chinese international students (CIS) in fields of psychology, sociology, educational policy, and Asian studies, the perspectives of Chinese families navigating international higher education, particularly from the viewpoints of parents, remain understudied. Additionally, few studies consider parental involvement in education during emerging adulthood. To fill this research gap, this study adopted an exploratory mixed-methods approach. The central research question was how do Chinese college students in the US and their parents in China navigate perceived stressors during the sociocultural, familial, and developmental transitions? Such findings are essential for informing theories, practices, and services that proactively support CIS and their families.

To comprehensively guide this study, we drew upon and moved beyond several Eurocentric theories that have traditionally served as groundwork for prior studies, each aligned with a specific research question regarding the multifaceted dimensions of CIS' experiences. Given the constantly changing nature of human development and their environments, the current study critically questioned the adequacy of the classical theories in capturing the nuanced interplay between adjustment during young adulthood, family socialization, and culture in the context of Chinese families with international students. Bronfenbrenner's (1979) ecological theory suggests that an individual's experience and growth are influenced by their interaction with various environmental systems, like culture, school, and family. By identifying and connecting sociocultural and familial factors, this theory offers a holistic framework to approach the following three transitions that are commonly associated with perceived stress.

Sociocultural transitions

This study broadly examines sociocultural factors at the macrosystem level by drawing from Berry's Model of Acculturation (1992). According to acculturation theory, as individuals adjust to the customs and behaviors of a new cultural environment, they may employ a continuum with four strategies: 1) assimilation (fully adopting a new culture), 2) integration (blending old and new cultures), 3) separation (maintaining original culture), and 4) marginalization (feeling disconnected from both cultures). Recent insights from cultural diversity explorations have led to new research avenues to explore the perspectives of populations living in two disparate cultures concurrently–as in the case of CIS experiencing transnational education (Zheng & West-Olatunji, 2016). As international students adapt to new cultural values, attitudes, and practices of their educational environment, an acculturation gap between children and their parents may lead to family tensions, which in turn correlates with higher anxiety levels and lower

self-esteem in ethnic minority youth (Rogers-Sirin et al., 2013). Yeh and Inose (2003) reported that CIS experienced higher levels of acculturative stress than their counterparts from European countries due to various factors, such as poorer English fluency and lower social support satisfaction. Beyond the struggles in a new cultural environment, CIS encountered stressors like financial concerns (Wilson et al., 2022), academic pressure (Yan & Berliner, 2009), language barriers (Qin et al., 2022), homesickness (Will, 2019), and a lack of belongingness (Yan & Berliner, 2011).

Due to the English-language dominance in academic publications, the voices of Chinese researchers and participants have been muted by the normalization of Western-centric assumptions and deficit-based prescriptions (Wu, 2022). Moreover, many studies have stopped at the vague suggestion of fostering a culturally diverse campus climate (Cao et al., 2021), leaving systemic inequalities and marginalization unsolved for international students. To operate the construct of "sociocultural transition," we define the inclusion criteria of our target population as Chinese citizen families with undergraduate students who were raised in China and currently attending a university or college in the US. Specifically, we inquired about the sociocultural transitions in both school and family settings because they are the primary contexts where culture is transmitted, expressed, and practiced. Therefore, the above exploration of sociocultural transition sets the stage for the inquiry into familial transition.

Familial transitions

Zooming in to examine families in the microsystem, this study incorporated Bowen's (1976) Family Systems Theory. Per Bowen's theory, each family member is like an emotional puzzle piece; changes in one part reverberate through the entire familial picture. However, prior studies on Chinese families often exhibited an outdated and monolithic view, emphasizing

emotional control in disciplinary tactics (Wu, 1985) and the culturally rooted notion of "guǎn"– parents governing and caring for youth out of love and responsibility (Chao, 1994).

Cross-cultural comparative paradigms have perpetuated an ethnocentric scientific conceptualization of Chinese parenting that has its roots in empirical evidence gathered predominantly from white, middle-class families (Chao, 1994). Instead of adhering to Diana Baumrind's (1966) model of four parenting styles (authoritative, authoritarian, permissive, and neglectful), researchers should recognize that parenting practices cover a wide range of strategies, beliefs, and tactics (Chao, 1994, 2001). Recognizing the fluid nature of family dynamics in the face of social and economic changes, recent studies challenged old-world stereotypes of "emotionally reserved" East Asians (Song, 1985), Chinese "tiger" mothers (Chua, 2011), and inexpressive fathers (Li, 2021). For instance, Way et al.(2013) highlighted that mothers of middle schoolers in Mainland China prioritized various parenting goals, including nurturing socially skilled, happy, healthy, autonomous, and academically successful children.

Thus, this study aimed to contribute to a more authentic understanding of the experiences of CIS and their parents in navigating familial transitions within the broader context of societal transformations and globalization. Aligning with family systems theories, this study also focused on the interconnected pathways of familial and developmental transitions, where familial transitions shape individuals' transition into young adulthood and vice versa (Bowen, 1976).

Developmental transitions

Children and parents are interdependent in the family system and their relationships are constantly changing. When individuals make the transition from adolescence to attending college, they must continue adjusting their relationships with family and navigating new interactions with their environments (Levinson et al., 1979). Experimenting with new roles in

family and society can be a factor correlated with elevated levels of stress (Dornbusch, 2000). In exploring the psychological processes of developmental transition into young adulthood, Self-Determination Theory (Deci & Ryan, 2008) and Erikson's (1950) Psychosocial Theory become pertinent. According to self-determination theory, fulfilling the universal need for autonomy and independence is directly associated with emerging adults' well-being. Moreover, according to Erikson's (1950) theory, forming intimate relationships is a central task in early adulthood. Yet, little is known about how the conflict between developmental needs and family disciplines would impact individuals. The challenge lies in how young adults balance the need for autonomy (as per self-determination theory) with the need for intimacy in both social and familial relationships.

Despite evidence that parents continue playing a significant role after their children enter early adulthood, existing literature on how parents may influence the degree of autonomy that emerging adults can realistically exercise remains insufficient. Therefore, the current study aims to explore the relationship between CIS and their parents. After their children leave home and adapt to new cultural values, parents need to overcome a looser attachment with their children (Vasileiou et al., 2019). Thus, this study included the voices of both students and parents.

Perceived stress

The discussion thus far has stretched to the cultural, familial, and developmental dimensions. However, the top layer of consideration revolves around the perceived stress experienced by CIS during their intricate transitions. Perceived stress refers to the feelings or thoughts that an individual has about the demands of an encounter and one's ability to cope with those demands (Phillips, 2013). As illustrated by Lazarus and Folkman's (1987) transactional model of stress and coping, perceived stress reflects the dynamic interplay between persons and

environments, which is mediated by cognitive appraisals and coping strategies over time. Specifically, when individuals experience environmental stimuli (which may be interpreted as sources of stress), they make a primary appraisal, interpreting the stimuli as either positive, irrelevant, or dangerous (i.e., challenge, threat, harm/loss). A primary appraisal of dangerous stressors then triggers a secondary appraisal to analyze the available resources one has to manage this perceived danger; thus, a secondary appraisal of insufficient resources induces stress. Fortunately, people can make efforts to manage stress by either using personal ability to change the situation (i.e., problem-focused coping) or using cognitive reframing to adjust their perception of the situation (i.e., emotion-focused coping) (Guttmann, 2016).

Perceived stress is well-elaborated in behavioral medicine and psychology research. While short-term stress can be beneficial to the immune system, chronic stress tends to suppress the normal functions of the immune system, raising the risk of tumor development (Salleh, 2008). Clinical studies also argued that perceived stress is a risk factor for changes in health behaviors, cardiovascular diseases (Rod et al., 2009), peptic ulcers (Deding et al., 2016), lower academic performance (Varghese et al., 2015), and unemployment (Mæhlisen et al., 2018). In the field of psychology, it's broadly accepted that stress vulnerability depends on a variety of intra- and interpersonal factors (Cohen et al., 2007; Salleh, 2008).

Familial factors, particularly helicopter parenting, can impact the perceived stress of individuals via the processes of cognitive appraisal (i.e., perception of certain environmental stimuli as stressors, identification of available resources) and coping (i.e., behavioral and psychological reactions to the stressors) (Cohen et al., 1983). Helicopter parenting refers to the over-involved or over-controlling practices that do not grant sufficient autonomy to the emerging adult child (Inguglia et al., 2015; LeMoyne & Buchanan, 2011). Studies have consistently

associated helicopter parenting with heightened stress (Su et al., 2023) and greater depression and anxiety among youth (Segrin et al., 2013). Thus, further exploration of perceived stress in association with helicopter parenting is necessary. However, the question is whether familial factors, like parental involvement and parent-child relationships, can be translated into coping resources. All the above evidence motivates further inquiry into the implication of parenting practices on the perceived stress levels of CIS.

Current Study

In the current research landscape, numerous studies have separately explored the relationship between resilience and coping styles with regard to psychological problems among CIS. However, a critical gap persists: few studies have adopted an asset-based approach to investigate the coping strategies used by CIS and the supportive role of their parents in navigating various stressors. This study primarily asked: (1) Across developmental, familial, and sociocultural transitions, how do these students and their parents perceive stress? (2) To what extent, are experiences during sociocultural transition, parent-child relationships, and parenting practices related to perceived stress? (3) How do they cope with stress? We hypothesized that CIS and their parents perceived a moderate level of stress from different stressors, that more positive experiences during the sociocultural transition, stronger parent-child relationships, and more balanced parenting practices would be associated with lower levels of perceived stress, and that CIS and their parents employ a range of coping strategies to manage stress.

While extant research underscores the significance of facilitating students' identity development and efficacy that will propel them into adulthood (Matross & Spreitzer, 2021; Wongtrirat et al., 2015), the prevailing internationalization plans in US universities have largely overlooked the distinct experiences of CIS and their overseas parents. Several reasons may

account for this oversight. First, unlike attention given to racial disparities in the US, the demographic of CIS and their parents, not being racially or ethnically underrepresented, has been neglected in Western scholarly discourse. Second, due to the cultural gap between China and the US, the measurements and theories developed in Western contexts may not be applicable in China. Third, the geographical distance between the two countries and the physical absence of Chinese parents on campuses make it difficult for universities to engage these parents effectively and consistently. This absence of Chinese parents, coupled with the acculturative stress experienced by Chinese international students, makes these experiences and relationships a critical gap in the psychological, educational, and developmental literature to date.

To avoid the pitfalls of copying the mainstream model of parenting in the US to measure Chinese parenting, the current study examined the correlations among quantitative data collected from the questionnaire and employed qualitative data collected from semi-structured interviews to provide confirmatory results and/or contextual insights. By documenting the lived experiences of Chinese college international students in the United States and their parents who remain home in China, this study aimed to identify the factors that may contribute to the perceived stress in family and school settings as well as appeal for culturally appropriate interventions and support from specialized expertise among faculty and community members. Therefore, the purpose of this study was to understand the unique experiences of Chinese families with college students in the US and provide insights into the role of parent-child relationships and parenting practices in relation to perceived stress from a culturally contextualized Chinese perspective.

Method

Given the multiple and complex relationships, styles, and factors involved in this study, a mixed-methods approach was most pertinent. Mixed-methods research integrates the depth of

qualitative insights with the breadth of quantitative data, providing a holistic understanding of rich experiences and stress management by capturing diverse perspectives and empirical evidence. This methodology allowed for the nuanced exploration of sociocultural, familial, and individual dynamics through both questionnaire responses and semi-structured interviews.

Participants

This study was conducted from an academic institution in the Mid-Southern United States which is known to enroll a high number of Chinese international students as well as international students from other countries around the world. The participants in this study included Chinese international college students in the US and their parents in China. The inclusion criteria of participants follows: (1) The participant is a citizen of the People's Republic of China and was raised in China. (2) The participant is a student (or the parent of a student) attending a university/college in the US. (3) The participant must be 18 years old or above. (4) The student participant's primary caregiver is a mother and/or father.

To recruit participants, a flier was disseminated on social media sites, including Instagram, Twitter, and WeChat (the largest social media application in China), to share the study information with others in their student networks to generate snowball sampling. The QR code of the questionnaire along with the contact information of the principal investigator and study coordinator were provided within these flyers by which interested participants were able to complete the questionnaire alone and contact the research team if they had any questions. As compensation for participation, all participants were entered into a raffle for an Amazon gift card. If participants did not consent to participate, they were excluded from the study. This study was reviewed by a third-party institutional review board (IRB) (BRANY, Lake Success, NY) and approved under BRANY File #23-113-734 (SBER).

Qualtrics responses from 40 students and 16 parents were collected. Five students' responses were incomplete and excluded because their primary caregivers were neither of their parents. Two participant responses were discarded due to concerns about data accuracy (data appeared to be artificially generated). After attrition, Qualtrics surveys from a total of 32 students and 16 parents were retained. Student participants ranged in age from 19 to 23 (M = 20.69). Twenty-five percent of the participants were male. Parent participants ranged in age from 45 to 57 (M = 50). Twenty-five percent were male. Five student-parent pairs (one same-sex dyad, two opposite-sex dyads, and two triads) and twelve student individuals participated in follow-up semi-structured online interviews. The student participants were from five private research universities, four public land-grant research universities, three liberal arts colleges, two public research universities, one private art college, and one private Ivy League research university. These institutions are located in ten different states and represent four US regions, including the west, northeast, southeast, and Midwest. The total number of CIS enrolled in these institutions in the year 2020 ranged from 52 to 5331 (College Data Analytics Team, 2023). The demographics of participants are summarized in Table 1.

Table 1

Demographics of participants

	Students (N=32)			Parents (N=16)	
	M	SD		M	SD
Age	20.69	0.97	Age	50	3.22
	N	%		N	%
Gender			Gender		
Female	24	75.00	Female	12	75.00
Male	8	25.00	Male	4	25.00
Student Classification			Highest educational level		
Sophomore	9	28.12	Not graduate high school	2	12.50
Junior	13	40.63	Associate's/Bachelor's	9	56.25
Senior	10	31.25	Graduate degree	5	31.25
Number of Majors			Marital status		
One	17	53.13	Currently married	15	93.75
Two	15	46.87	Divorced	1	6.26
Marital status			Annual household income[1]		
Never married	31	96.88	200,000 – 499,999	3	18.75
Other	1	3.12	500,000 – 799,999	5	31.25
			800,000 – 1,000,000	8	50.00

Measures

The current study used a convergent, exploratory sequential mixed-methods design, using follow-up qualitative data from semi-structured online interviews to better understand quantitative data from online questionnaires. The questionnaire consisted of a demographic survey and five instruments adapted from previous studies to measure perceived stress level,

[1] RMB 200,000 ≈ USD 27,790; RMB 500,000 ≈ USD 69,476; RMB 800,000 ≈ USD 111,162; RMB 1,000,000 ≈ USD 138952

satisfaction with college experience, parent-child relationship quality, and parenting practices in terms of helicopter parenting practices and beliefs in the training parenting style.

Perceived stress. The perceived stress level was measured by the 10-item Perceived Stress Scale (PSS-10; Cohen et al., 1983). The validity and reliability of PSS-10 have been tested in a large community-based general population in China (Huang et al. 2020). The Chinese version of PSS-10 was translated by Shanghai Mental Health Center. PSS-10 comprises two subscales: negative subscales and positive subscales. Each item is rated on a 5-point Likert scale, ranging from 0 = 'never' to 4 = 'Very often'. The total score of PSS-10 is obtained by reversing the scores on the positive items and then summing all the items. The validity and reliability of this instrument have been tested in a sample of 9507 Chinese adults in mainland China (Huang et al., 2020).

College experience. The college experience was measured by 30 items from the International Student College Experience Scale (ISCES) developed by Pang (2006), scored across four dimensions: Perceived Cultural Tolerance from US Nationals, Social and Academic Interactions with US students, Perceived Residential Climate, and Personal & Academic Interactions with US Faculty. For the purpose of the current study, the ten items of the Perceived Residential Climate subscale were not used because our research questions did not directly address peer relationships. Each item is rated on a 6-point Likert scale, ranging from 1 = 'strongly disagree' to 6 = 'strongly agree'. The scores on all 13 items of "Perceived Cultural Tolerance from US Nationals" as well as item 15 and item 17 of "Social & Academic Interactions with US Students" were reverse coded. The subscale scores were obtained by averaging the sum of item scores of related subscales. Higher scores indicated a more satisfying

college experience, and vice versa. The validity and reliability of this instrument have been tested in a sample of 361 Chinese undergraduate students in the US (Longerbeam et al., 2013).

Parent-child relationship. Parent-child relationship quality was measured by two versions of the 13-item Parent Adult-Child Relationship Questionnaire (PACQ; Peisah, 1999): one assesses the relationship between mother and adult-child, while the other assesses the relationship between father and adult-child. The mother version of PACQ includes dimensions of regard and responsibility; the father version of PACQ includes dimensions of control, regard, and responsibility. Each item is rated on a 4-point Likert scale, ranging from 0 = 'Not true at all' to 3 = 'Very True'. The validity and reliability have been tested in a sample of 454 adult children in China (Wang et al., 2018).

Parenting practice. Parenting practice was evaluated by the 19-item Helicopter Parenting (HP) measure developed by Zong and Hawk (2022) based on a sample of 536 mothers in Mainland China. A valid and reliable Chinese version of the instrument is available from Zong and Hawk's study. HP measure comprises five dimensions: advice/affect management, anticipatory problem solving, information seeking, emphasis on academic performance, and tangible assistance. To customize the aspects of Chinese parenting that reflect "training" in addition to their parenting practices, the 6-item Training Parenting Style (TPS; Chao, 2000) was used to assess students' and parents' beliefs in the parenting style which has been defined as training and involvement out of loving and caring (Chao, 1994). Each item in the above two instruments (i.e., HP and TPS) is rated on a 6-point Likert scale, ranging from 1 = 'strongly disagree' to 6 = 'strongly agree'. Both mother versions and father versions were available to student respondents.

Covariates. Age, gender, students' school year, the number of majors, parents' occupation and educational background, and annual household income were used as covariates in all analyses.

Semi-structured interview. The interview questions were developed based on the literature review and personal experiences of two CIS on the research team. The ultimate goal of the interview was to encourage international students and their parents to elaborate on their lived experiences to lend a depth that is not achievable in electronic surveys. The semi-structured interview guide focused on five main topics: a stressful situation during the past six months, parent-child communication during the past six months, parent-child relationship, parenting practices, and satisfaction with college experience as an international student in the U.S for student participants (their experience after their child went studying abroad for parent participants).

Procedures

Participation involved the completion of a questionnaire and an optional semi-structured online interview. The questionnaire was translated into Simplified Chinese with a Chinese-English bilingual undergraduate student, and accuracy can be ensured through back translation with another Chinese-English bilingual speaker. The questionnaire was digitally administered through Qualtrics. The average time commitment for students was 10.55 ± 4.09 minutes. The average time commitment for parents was 22.05 ± 15.96 minutes. To pair up the parent(s) and student as a dyad, parent respondents were asked to provide the name of their child; student respondents were asked to provide their name. To protect the privacy of participants, all names were assigned a numerical identifier after the researcher paired up the student-parent dyads.

Those who expressed interest in an optional follow-up interview were contacted by a member of the research team to schedule the interview at their convenience.

All interviews were conducted via WeChat/Zoom/Tencent Meeting by a Chinese-speaking member of the research team from private office space to help maintain confidentiality. Participants indicated their choice of the digital platform for the interview based on their preference and accessibility while scheduling. The interviewer administered the interview questions in Mandarin Chinese. The average duration of interview sessions was 30.58 minutes. All interviews were audio-recorded. Interviewees were never asked to turn on their cameras. No video was recorded. These audio files were stored in a password-protected Box folder that only the key study personnel could access. All audio files were destroyed once they had been transcribed. All data were de-identified for analysis, publication/presentation, and/or dissemination of results. Participation concluded with the completion of the interview. All interviews were conducted within three weeks after the participant completed the survey.

Analyses

Quantitative Analysis. A power analysis using G-power version 3.1.9 was used to calculate the achieved statistical power. It was found that the current sample size of students (N=32) only achieved 56% power, at a significance criterion of $\alpha = .05$ for linear multiple regression analysis with two predictors. Therefore, instead of confirmatory data analysis, we adopted an exploratory data analysis in line with the case study methodology to examine the correlations in the collected data and inform follow-up studies. Likert scale data were analyzed as interval data with R Studio (Version 2023.06.1+524).

Qualitative Analysis. Our approach to analyzing interview data drew upon grounded theory (Strauss & Corbin, 1990). Verbatim transcripts were analyzed following Braun and

Clarke's (2006) six-step procedure of thematic analysis and inductive content coding system described by Boles and colleagues (2017). Following the initial analysis, we used the building approach for the reporting-level data integration by matching the themes and participant quotes to their corresponding questionnaire item domains. For example, the themes about stress and coping deducted from interview transcripts were matched with the interviewees' PSS-10 scores. We expected to see that the qualitative data confirms the quantitative data.

Results

Missing data. The collected dataset of our study revealed a complexity because of the incomplete participation of family units. Moreover, not all student respondents identified both fathers and mothers as their primary caregivers. Consequently, 6 student responses did not include data on measures related to fathers. Furthermore, only 8 dyads (student with one parent) and 3 triads (student with both parents) provided a multi-informant dataset.

Therefore, we adopted a stratified data analysis approach, each aimed at addressing different aspects of parental influence and family dynamics. Firstly, we examined measures related exclusively to mothers, allowing for a comprehensive assessment of maternal influences across all available data. Secondly, we performed a separate analysis on the 25 complete responses that included data for both mothers and fathers, allowing for the exploration of the nuanced interplay between maternal and paternal influences on the students. Thirdly, we carried out an independent analysis of all 16 parent responses to understand parental perspectives and behaviors that may not be reflected in the student responses. Lastly, we conducted a Wilcoxon Matched Pairs Signed Rank Test for the 8 dyads to explore within-family interactions.

Data processing. To integrate diverse constructs measured by Likert scales with multiple dimensions and scoring schemes, relevant dimensions were aggregated into composite scores for

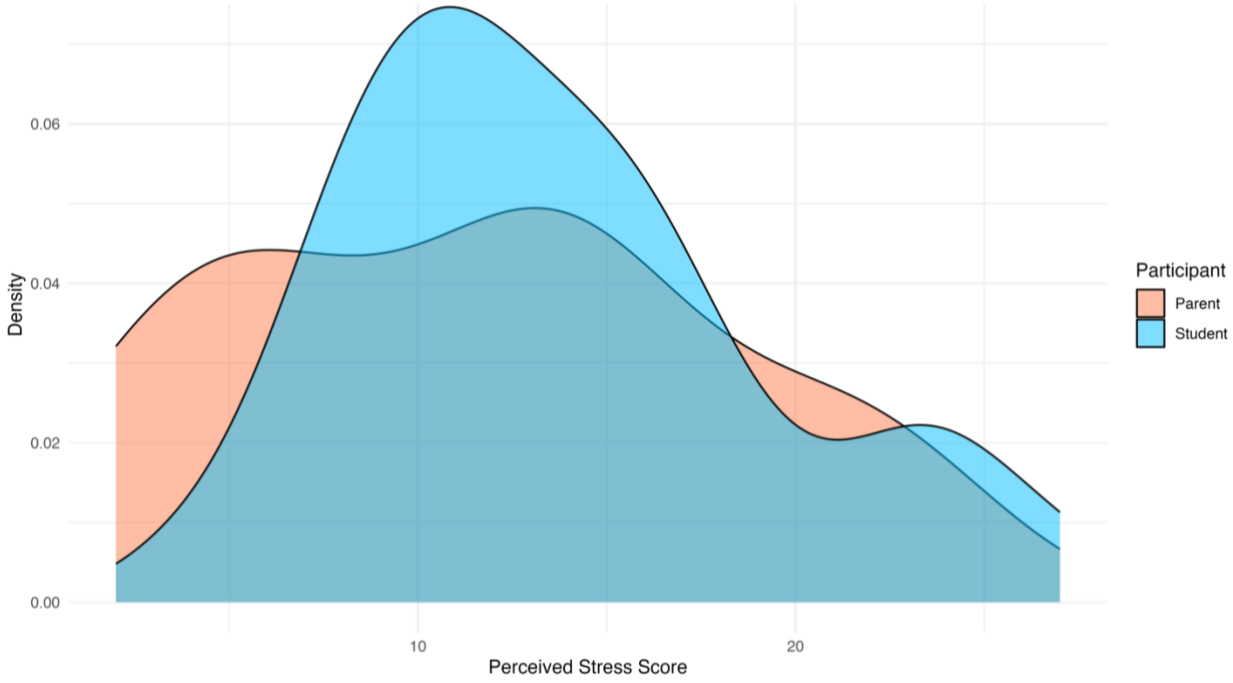
each construct. For instance, the composite score for students' experiences during their sociocultural transition was derived from the cumulative scores of Perceived Cultural Tolerance from US Nationals, Social and Academic Interactions with US Students, Perceived Residential Climate, and Personal & Academic Interactions with US Faculty. Similarly, composite scores for the perception of the parent-child relationship, helicopter parenting practices, and beliefs in training parenting were derived from their respective dimensions.

(1) How do these students and their parents perceive stress?

Survey results. The perceived stress scores reported by students ranged from 4 to 27 (M = 13.69, SD = 5.61). The perceived stress scores reported by parents ranged from 2 to 22 (M = 11.56, SD = 6.64). Given the unequal variance in the survey data from students and parents, we employed a Welch two-sample t-test to compare the mean scores of perceived stress scores between students and parents, which did not significant difference in perceived stress scores between students and parents (t(26) = 1.10, p = .28). Figure 1 illustrates the distribution of

Figure 1.

Distribution of Perceived Stress among Chinese Students and Parents



perceived stress among students and parents. The right-skewed pattern suggested a generally moderate to low level of perceived stress across the two sample groups. According to the criteria set forth by the NH Department of Administrative Services, scores between 0-13 denote low stress, 14-26 moderate stress, and 27-40 high stress. Based on this criteria, all but one participant with a stress score of 27 fell into either low or moderate stress category. Therefore, this outlier was omitted from subsequent analyses.

Interview results. Follow-up interviews with 7 parents and 17 students revealed inconsistencies in self-reported perceived stress. Fifty-four percent of interviewees narrated stressful experiences that did not align with their stress category based on survey scores. All parents but one reported no significant stressful events, whereas all students recounted recent stressors. Of the 18 interviewees acknowledging stressful encounters, 33.3% cited academic pressures such as current schoolwork and graduate program applications, 27.8% mentioned professional concerns like current internship and post-graduation job searches, 22.2% discussed interpersonal issues including conflicts with roommates, romantic parterners, or family members, and 16.7% were related to bereavement or a family member's illness. One interviewee reported low stress in the survey but conveyed a highly stressful experience during the interview, suggesting a potential disconnection between survey reports and narrative reports.

(2) Are experiences during sociocultural transition, parent-child relationships, and parenting practices correlated to perceived stress?

Sociocultural transition. The students' ratings of sociocultural transition ranged from 99 to 186 (M = 145, SD = 19.86). The parents' ratings ranged from 119 to 186 (M = 149.2, SD = 21.15). A Welch two-sample t-test showed that there was not a significant difference in the means ($t(28.47) = -0.70$, $p = .49$).

Parent-child relationships. For students, reported mother-child relationship scores ranged from 9 and 32 (M = 22.81, SD = 6.12); father-child relationship scores ranged from 4 to 26 (M = 15.12, SD = 4.65). For parents, mothers reported scores of relationship with their children ranged from 10 to 26 (M = 18.67, SD =5.30); fathers' reported scores ranged from 7 to 21 (M = 13.75, SD = 5.74). For the 8 matched dyads, a Wilcoxon signed-rank test was conducted to compare the perceived relationship between students and their parents. No significant difference was found in the scores for the relationship with fathers ($V = 18$, $p = .14$). However, there was a significant difference in perceived relationship scores with mothers ($V = 34.5$, $p < .05$). Students reported higher scores on the maternal relationship scale compared to their mothers. Pearson's correlation analyses indicated that the student's reported relationship with mothers was positively correlated with both maternal helicopter parenting ($r = .66$, $p < .001$) and paternal helicopter parenting ($r = .55$, $p < .01$).

Parenting practices. Parenting practices were measured by the 5 dimensions of the helicopter parenting scale and the training parenting scale. The students' ratings of paternal helicopter parenting ranged from 26 to 104 (M = 73.58, SD = 17.00); the ratings of maternal helicopter parenting ranged from 41 and 109 (M = 77.48, SD = 16.09). The students' ratings of training parenting ranged from 10 to 36 (M = 25.23, SD = 6.32). Parents self-rated helicopter parenting ranged from 56 to 92 (M = 73.88, SD = 9.08); their training parenting rating ranged from 16 to 31 (M = 32.12, SD = 4.53). For the 8 dyads, a Wilcoxon signed-rank test showed that there was no significant difference between students' and parents' scores for paternal helicopter parenting ($V = 18$, $p = .14$) and training parenting ($V = 19$, $p = .44$). However, a significant difference was observed in their scores for maternal helicopter parenting ($V = 33.5$, $p < .05$).

Students reported higher scores on the maternal helicopter parenting scale compared to their mothers.

Descriptive and correlational analyses. Means, standard deviations, and correlations for the variables in students' data and parents' data are presented in Table 2 and Table 3 respectively. However, none of these correlations reached statistical significance. Specifically, perceived stress scores were minimally related to sociocultural transition ($r = .24$, $p > .05$), and weak negative correlations were observed with students' ratings of their relationships with fathers ($r = –.18$, $p > .05$) and with mothers ($r = –.11$, $p > .05$). Additionally, paternal helicopter parenting ($r = .11$, $p > .05$) and maternal helicopter parenting ($r = .23$, $p > .05$) showed negligible positive correlations with perceived stress scores. Training parenting showed a negligible negative correlation with perceived stress ($r = –.09$, $p > .05$). Maternal helicopter parenting was positively correlated with paternal helicopter parenting ($r = .71$, $p < .001$) and training parenting ($r = .40$, $p < .05$). Therefore, we combined the scores of maternal helicopter parenting, paternal helicopter parenting, and training parenting into a composite index of parenting practices. However, this combined parenting practices score did not correlate significantly with perceived stress reported by students ($r = .16$, $p = .38$).

Table 2

Descriptive Statistics and Correlations for Students' Data

Variable	N	M	SD	1	2	3	4	5	6	7
1. Perceived Stress	31	13.26	5.14	–						
2. Sociocultural Transition	31	145.00	20.13	.24	–					
3. Relationship with father	26	15.12	4.65	–.18	–.04	–				
4. Relationship with mother	31	22.81	6.12	–.11	.01	**.67*****	–			
5. Paternal parenting	26	73.58	17.00	.11	.13	**.61*****	**.55****	–		
6. Maternal Parenting	31	77.48	16.09	.23	.23	**.42***	**.66*****	**.71*****	–	
7. Training Parenting	31	25.23	6.32	–.09	–.30	**.40***	.31	.34	**.40***	–

$^{*}p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Table 3 demonstrated that perceived stress scores of parents did not show significant correlations with the variables studied either (sociocultural transition: r = –.18; relationship with father: r = –.16; relationship with mother: r = –.07; helicopter parenting: r = .18; training parenting: r = .42; all p's > .05).

Table 3

Descriptive Statistics and Correlations for Parents' Data

Variable	N	M	SD	1	2	3	4	5	6
1. Perceived Stress	16	11.56	6.64	–					
2. Sociocultural Transition	16	149.20	21.15	–.18	–				
3. Relationship with father	4	13.75	5.74	.16	.71	–			
4. Relationship with mother	12	18.67	5.30	.07	–.13	NA	–		
5. Parenting practice	16	73.88	9.08	.18	.23	–.70	.45	–	
6. Training Parenting	16	23.12	4.53	.42	.15	–.35	.10	.48	–

(3) How do Chinese international students and their parents cope with stress?

While quantitative analyses above indicated that neither parent-child relationships nor parenting practices significantly influence perceived stress, our qualitative analysis of interviews suggested a tendency of mutual support between these Chinese students and their parents in managing perceived stress. In terms of coping strategies, participants in our study engaged in a variety of activities. Despite the physical separation, 48.2% of interviewees in our study found informal conversations with parents and peers beneficial in coping with stress. 20.7% engaged in personal hobbies such as physical exercise, music, and dance when encountering stressful situations, 13.7% utilized professional services or medication, 6.9% tried cognitive reframing, 6.8% resorted to other less common methods such as meditation and ChatGPT, and 3.4% did not proactively address their stress. An in-depth thematic analysis of the interviews with five dyads and two triads contextualized parent-child communications that help stress management.

Remote yet mutual support. All student and parent interviewees actively and frequently used WeChat messaging and video/audio calls to maintain a robust connectedness. Through this communication technology, CIS and their parents can share daily updates, emotional states, and future plans despite geographical and temporal distances. One student shared, “My parents answer my calls any time, although we are in separate time zones. Being able to manage on my own was crucial, but knowing I had their support was comforting.” Her mother commented, “We video chat frequently, but no set time for calls. We wait for my daughter to come to me because we don’t want to intrude into her life. She’s sweet. She often asks about my well-being. When I was burned out, my daughter would try to relax me.” The narratives from this student-mother dyad exemplified the reciprocated positive affection, and mutually involved with and care for each other (Clark & Ladd, 2009).

Openness and autonomy. While all parents offered support and guidance, they also emphasized the importance of their children making independent decisions regarding their children's studies, social interactions, and future career paths. This balance indicates a nuanced understanding of parenting that encourages growth and self-discovery. "When he was abroad, we couldn't offer direct help, just advice and support," said a mother, "I usually let her do what she wants to do because I trust her judgment and ability to handle unexpected things. Of course, we're always here if she needs us, but it's important for her to learn from her own experiences."

(4) The Role of Fathers.

Despite a limited number of father participants in the present study, insights from three father interviewees revealed varied approaches to supporting their children's experience during development, familial, and sociocultural transitions. Each father's strategy reflected a complex blend of cultural values, personal beliefs, and responsiveness to their child's individual needs and circumstances. Father A focused on providing advice based on limited knowledge of the local context. Father B described being actively involved in his daughter's life, providing practical assistance with travel arrangements, and showing interest in her hobbies and academic life. Father C focused on the child's well-being and emotional stability. The approach each father adopts is tailored to the unique dynamics of their relationship with their child and the specific challenges and opportunities presented by studying abroad. They shared a common goal of supporting their children's growth, well-being, and success in their studies abroad.

Discussion

The primary goal of the present study was to explore how Chinese international students and their parents perceive and manage stress, in consideration of the role of sociocultural transition, parent-child relationships, and parenting practices.

The first hypothesis was supported. The survey responses showed that most participants fell into low or moderate stress categories. However, follow-up interviews uncovered discrepancies between self-reported survey scores and narratives of stress experiences, particularly among students. The disconnection in how perceived stress is reported in the survey versus articulated in interviews suggested potential underreporting or misperceptions of stress levels in survey responses. While no significant difference in stress scores between students and parents emerged from surveys, their narrative accounts diverged: students detailed specific stressors associated with academic pressures and social adjustments, which parents did not perceive. The interviews illuminated specific stressors not fully captured by the survey, such as academic pressures, professional concerns, interpersonal issues, and family matters. This highlights the complexity of stress experiences among CIS and the importance of employing both quantitative and qualitative methods to capture the multifaceted nature of stress. Firstly, perceived stress scores may fluctuate by the chronological distance between certain stressful encounters and the time that participants fill out the survey. The timing of data collection (August to September 2023) might have contributed to lower stress reports from students, as the period might not have coincided with academic high points. Two students who were taking summer courses did mention academic stress in the interview. If we collected multiple data for each individual throughout the academic year, we could obtain a more comprehensive understanding of the changes in perceived stress in relation to individuals' lived experiences.

Additionally, parents may underreport stress due to different thresholds for stress recognition or reluctance to share personal vulnerabilities. It would be interesting if a follow-up study could use a situational measurement to examine individual differences in stress perception of the same situation.

The second hypothesis was not supported. Contrary to the prediction made, findings revealed no significant correlations between perceived stress and experiences during the sociocultural transition, parent-child relationships, and parenting practices among both CIS and their parents. This suggests that the relationship between these factors and perceived stress may not be direct and may be influenced by other, unmeasured variables such as academic pressures, peer and romantic relationships, and unexpected loss of significant others as mentioned by some interviewees. Future studies should include academic stress as one of the independent variables because other literature suggests that academic stress could be the most dominant factor that affects the mental well-being of college students (Barbayannis et al., 2022). Interestingly, there was a significant difference in perceived mother-child relationship scores and maternal helicopter parenting scores, as reported by students versus their mothers. These divergences may suggest differing perceptions and interpretations of parent-child relationships and parenting behaviors.

However, the chosen survey instruments and their translations may have limitations. Differences in linguistic proficiency between students, who are fluent in both Mandarin Chinese and English, and parents, many of whom lack English competency, could lead to varied interpretations of the translated prompts. Based on feedback from two student-parent dyads in the pilot study, students might reinterpret the prompts in English to aid comprehension, an approach not readily available to most parents, potentially affecting response accuracy.

Therefore, employing bilingual survey prompts and mixed-methods (i.e., combining questionnaires with interviews) may offer more effective alternatives than simply strengthening the quality of the translation itself.

The third hypothesis was supported by the collected qualitative data. CIS did employ a combination of individual and familial strategies to navigate perceived stressors associated with developmental, familial, and sociocultural transitions. As only one parent acknowledged stress and shared coping strategies in the interview, we could not reach any conclusion for parents. Notably, informal conversations with parents and peers emerged as the most prevalent coping strategy. Personal hobbies and professional services were outlets for managing stress as well. The thematic analysis underscored the importance of remote, yet mutual support facilitated by communication technologies like WeChat.

It is worth noting that this study used a snowball sampling method, which may limit the generalizability of the results. Additionally, the self-reported nature of the data may introduce bias and social desirability effects. As the recruitment of the current study is highly selective, our findings may neither be generalized to college students who are attending school in China nor to international students from other countries. In enhancing the robustness of future studies, incorporating physiological measures, such as cortisol levels or heart rate, as complementary tools to self-report data would offer a more comprehensive perspective on stress.

The implications of this study extend beyond academic realms, paving the way for informing culturally sensitive theories, more supportive parenting practices that are developmentally appropriate for emerging adults, and targeted policies that better cater to the unique needs of the CIS population and their families. Building on the insights gained from this study, the next phase of research should aim to unpack the individual factors that contribute to

stress resilience within the context of family dynamics. Furthermore, collaboration with Chinese institutions to broaden participant recruitment across diverse backgrounds would contribute to the generalizability and applicability of findings, enriching the field with a more representative sample. We hope more researchers can identify variations within the Chinese population and develop culturally adapted instruments by offering bilingual survey prompts and improving the applicability of their methods to international students from other countries.

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