



Family cohesion and social adjustment of chinese university students: the mediating effects of sense of security and personal relationships

Baojuan Ye¹ · Xi Lei¹ · Jianfeng Yang² · Paul James Byrne² · Xiaochuan Jiang³ · Mingfan Liu¹ · Xinqiang Wang¹

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Abstract

Many university students in China find university life challenging and do not adapt well to the transition (Pan et al. 2016). To address these challenges this study extends understanding of the influences of family cohesion on university students' social adjustment. The study tested the mediating effect of sense of security and interpersonal disturbance. A sample of 728 Chinese university students (345 males and 383 females with a mean age of 20.62 years) was surveyed using the Family Cohesion Scale, Sense of Security Scale, Relationship Comprehensive Assessment Questionnaire, and Social Adjustment Questionnaire. The findings supported the hypotheses that family cohesion impacted social adjustment through university students' sense of security and interpersonal disturbance. Family cohesion and sense of security were protective factors and disturbance in interpersonal relationship was a risk factor for social adjustment. Sense of security mediated the relationship between family cohesion and social adjustment; interpersonal disturbance mediated the relationship between family cohesion and social adjustment; sense of security and interpersonal disturbance played serial multiple mediating roles in the relationship between family cohesion and social adjustment. Application of these results might support the development of effective strategies to promote the social adjustment of university students during their transition to full adulthood.

Keywords Family cohesion · Sense of security · Interpersonal disturbance · Social adjustment · University students · Mediating roles

The period between ages 18 and 25, referred to as “emerging adulthood”, is an important stage in life when individuals transition from adolescence to adulthood and has a great impact on individuals' future development (Arnett 2000). During this stage, many young adults obtain education and training in skills that are prerequisites for their adult incomes and occupational achievements (Chisholm and Hurrelmann 1995). Arnett (2000) further argued that university life had a vital role during this developmental stage because individuals began to experience significant contact with the broader society and they complete the preparatory work needed to step into the world of work. Moreover, university students

experience the transitional processes (such as cognitive, emotional, behavioural changes, and so on) that culminate in reaching full adulthood (Arnett 1994). During this period, individuals are faced with many developmental psychological challenges such as separation from their family and adaptation to a new environment (Astin 1993; Hoffman 1984). Many university students suffer from interpersonal and relationship problems (Cloitre et al. 2005; Erickson et al. 2015).

Social adjustment refers to the ability to adapt to changes in social life and the wider social environment and is divided into three factors: 1. learning adjustment, 2. interpersonal adaptation, and 3. life adaptation (Zheng 1999). Fang et al. (2005) suggested that this adjustment was continuous throughout the whole of a student's university life. Studies found that individuals' social adjustment might be influenced by the family environment, interpersonal relationships, and emotional aspects and self-regulation, etc. (Meyerson et al. 2002; Park and Park 2017; Pecora et al. 2016; Wariso et al. 2017). However, traditionally within the Chinese education system students are rarely taught about social adjustment and acquiring the broader life skills necessary to operate in the wider world. As a result of the exam-oriented education approach, parents and teachers constantly pressure for higher school-

✉ Jianfeng Yang
303103546@qq.com

¹ Center of Mental Health Education and Research, School of Psychology, Jiangxi Normal University, Nanchang, China

² Jiangxi University of Finance and Economics, Nanchang, China

³ School of Political and Law, Jiangxi Normal University, Nanchang, China

grades (Kirkpatrick and Zang 2011), paying little attention to the development of social skills and social experiences such as experienced in part time jobs or voluntary work. Furthermore, between 1982 and 2015, the Chinese government implemented family planning policies which led to a great number of families with only one-child (Cao et al. 2015). Parents dote excessively on their only child creating the “little emperor” syndrome where children are shielded from the “normal” challenges of growing up by their over protective parents (spoilt brat syndrome). Teachers exacerbate the situation in school by encouraging dependency and conformity.

Every aspect of a Chinese student’s life is taken care of by adult family members who “over-protect” the child leading to their lack of independence and adjustment (Nelson et al. 2006). Many university students fail to look after themselves properly and deal poorly with others because of inexperience. When they leave home to go to university, many of them have to face these challenges by themselves for the first time rather than being able to totally rely on parents as they have done up to that point. So, university life can be stressful and many Chinese university students struggle to adjust socially (Pan et al. 2016; Shim et al. 2017). Being confused about how to achieve social acceptance (accepted by peers, friends or others) and adapt to changes in their environments, they tend to be fearful of the life after graduation because they have to enter the society and become more independent of their parents and family (Schneider et al. 2016; Zhang et al. 2018). This current study aimed to understand how family cohesion may influence college students’ social adjustment.

Family Cohesion and Social Adjustment

According to family systems theory, families are organized systems that are the foundations of an individual’s mental and social development (Minuchin 1985). Studies have found that family factors strongly influence individuals’ psychological and social adaptation (Demby et al. 2017; Fontaine 2017; Mistry et al. 2002). The family is of central importance to the Chinese people. Chinese families are extremely cohesive and the members depend on each other for emotional support and carrying out daily tasks (Hu and Chen 2018).

In Chinese traditional culture, which mainly refers to Confucian Culture (儒家文化), all life’s wisdom and social order are regarded as being cultivated within the family which has been described as the “church of the Chinese people” (Dong 2016). However, western society stresses that close family relationships must be based on equality, Chinese people advocate sacrifice for the good of family (Swann et al. 2014). Children are often the pivot of the Chinese family and their parents even grandparents supply them with all the resources

they need for example cash, house, sustenance... Besides, Confucian Culture advocates family harmony, an important component of Confucius thought on harmony (Chen 2011). “Harmony” is defined as the inner balance of a person, the balance between individuals and the natural or social surroundings and Chinese people always try their best to maintain this balance (Jin Hoare and Butcher 2008). Confucius phrased it as harmony between children and parents, spouses, the family and their neighbours and the family and the emperor. From ancient times to the present people have developed broader, richer, and more liberal understandings of harmony and these understandings have had a profound influence on Chinese culture as whole, during its long history (Li 2008). Family harmony has an effect on individuals’ development and family cohesion can reflect the level of family harmony (Perry et al. 2004; Zhou et al. 2006). So, this study is concerned with family cohesion and its impact on social adaptation, defined as the emotional bonding among family members and the extent of individual autonomy a person experiences within the family system (Caetano et al. 2017). Individuals who perceive their family cohesion to be weak were found to have difficulty in forming social bonds (Wentzel and Feldman 1996), whereas those who perceived their own strong family cohesion were found to be more adaptable (Meyerson et al. 2002). Greater family cohesion was associated with better social adjustment outcomes, which could be regarded as the harmonious relationship between individual and society (Liu et al. 2014; Van Schoors et al. 2017).

The Mediating Role of a Sense of Security

Hofstede (1980, 2011) proposed six dimensions of culture, including uncertainty avoidance, which was related to the level of stress that people felt in a society when they were faced with an unknown future. His study showed that different countries or nations would have different levels of uncertainty avoidance and Chinese people’s level was higher than most western countries (Hofstede 1980, 2011) i.e. the Chinese avoid uncertainty more often than westerners. Researchers found that uncertainty avoidance was related to a sense of security (Al-Mukahal and Alshare 2015; Vitell et al. 2016). Cong and An (2004) believed that a sense of security was a feeling that can face and accept the possible future risk (physical or mental), often expressing as a sense of certainty and control. They divided sense of security into interpersonal security, sense of certainty and control over future life.

Previous studies have found that a sense of security was significantly related to the family environment (Coe et al. 2017; Jobe-Shields et al. 2017). The emotional bonding among family members impacts family cohesion and could benefit the individual’s sense of security (Qin et al. 2015). When individuals perceive that their family cohesion (i.e. their

emotional bonding with family members) is strong, they might perceive a supportive family environment (Feldman et al. 2018), which tends to increase their sense of security (Kliewer et al. 2006).

Many studies have reported that insecurity is linked to negative emotions, worries about death, or anomie (Christopher et al. 2006; Kashdan and Breen 2007). When individuals feel sufficiently secure, they may be braver to face up to the complex demands of society, which might increase their adaptability and the likelihood of future success (Hall and Closson 2005). Researchers have found that a sense of security has critical implications for an individual's social adjustment (Bergman et al. 2018; Cummings et al. 2017; Shipton and Lashewicz 2017). Emotional security theory emphasizes emotional security playing a mediating role between family ties (particularly marital relations) and the individual's social adjustment (Davies and Cummings 1994). Therefore, family cohesion might influence the establishment of a sense of security and consequentially affect an individuals' social adjustment.

The Mediating Role of Interpersonal Disturbance

Collectivism, the practice of giving preference to the group rather than the individual, is widely advocated and accepted in China (Lockett 1988). In addition, the collectivist orientation has an effect on interactions among individuals (Varma et al. 2009). Thus, interpersonal relationships may have a special meaning for Chinese people. Influenced by collectivism culture, in the Chinese cultural context, interpersonal relationships are an especially important part of life and have evolved into a social resource (Bian 2017; Xue et al. 2018). Chinese people strive to maintain interpersonal harmony, also an important part of harmony thought, and indicative of good interpersonal relationships (Chen et al. 2006). This study is mainly concerned with university students' interpersonal relationships in a university setting, the relationships between university students and their peers and other groups they encounter e.g. lecturing staff, support staff, during their undergraduate time (Zhao and Jia 2006). The increasing popularity of smartphones means that more and more Chinese adolescents are able and willing to make friends on-line, these virtual friendships lead to many of them not developing real life interpersonal skills and they are therefore often too inexperienced to deal with interpersonal relationship with peers and lecturers, when they encounter them in their day to day life at university (Li et al. 2018). Thus, many Chinese university students face difficulties in sustaining interpersonal relationships, which could be called interpersonal disturbance (Cloitre et al. 2013; Liu 2016).

Relationship patterns that individuals acquire in the process of interaction with parents and family may be the basis for

interpersonal functioning (Blumenthal et al. 1998). It was found to be positively related to healthy interpersonal relationships (interpersonal harmony) and social adaptability which is harmony between individual and society (Lawson 2008; Meyerson et al. 2002). Other studies have found that the quality of interpersonal relationships influenced individual social adaptation (Lopez and Gormley 2002; Park and Park 2017). Healthy interpersonal relationships have been found to relate to individuals' well-being and be the indicator of social competence (Long et al. 2017). Interpersonal problems or relationship disturbances might be linked to difficulties in social adjustment (Cloitre et al. 2005). Accordingly, it is suggested that interpersonal disturbance might play a mediating role between family cohesion and social adjustment.

Sense of Security and Relationship Issues (Interpersonal Disturbance)

Furthermore, it is important to note the close connection between a sense of security and relationship issues (interpersonal disturbance). Huang and Berenbaum (2017) proposed that security was associated with people's interpersonal traits. Sense of security positively correlated to associative behaviours, such as increased agreeableness and decreased contentious behaviours (Russell et al. 2011). Individuals who feel secure (high sense of security) in their interpersonal communication will be more likely to develop the necessary interpersonal skills (Miczo 2004). A poor sense of security was found to have a negative impact on interpersonal relationships (Seddig and Davidov 2018). Specifically, people with a poor sense of security tend to be suspicious of others, conceal their feelings and emotions, and subconsciously reject loving care as well as attention, consequentially they tend to have low-quality interpersonal relationships (Maslow 1942). So, the high family cohesion improves a sense of security, which in turn benefits interpersonal relationship, which finally promotes the individuals' better social adjustment.

The Present Study

This study focused on the impact of family cohesion on social adjustment as well as the indirect effects of a sense of security and interpersonal relationships on social adjustment, among Chinese college students, applying the theories expounded above and building on the results of other previously published studies. Other studies have examined the relationship between family systems and social adjustment, but have mainly been concerned with the direct effects (Van Schoors et al. 2017) or focussed on single factors (Demby et al. 2017; Fontaine 2017). This study explored multiple factors influencing the social adjustment of university students including family cohesion,

sense of security and relationship factors. As this study is bedded in a Chinese context it is particularly relevant in expounding the special meaning, of family and interpersonal relationship to Chinese university students. Arnett (2008) proposed that psychological research be extended to multiple countries which would broaden the scope of psychological research and make it more culturally and internationally relevant.

A serial multiple mediator model, (Fig. 1) was constructed to provide a more accurate assessment of mediating effects in multiple research contexts (MacKinnon et al. 2007). This study tested the following four hypotheses, in a Chinese context.

- H1: Family cohesion is related to social adjustment.
- H2: Sense of security mediates the relationship between family cohesion and social adjustment.
- H3: Interpersonal disturbance mediates the relationship between family cohesion and social adjustment.
- H4: Interpersonal disturbance is related to a sense of security, indicating they play serial mediating roles in the relationship between family cohesion and social adjustment.

Method

Participants and Procedures

This study sample comprised 728 Chinese university students who completed and returned the questionnaires. About 22.4% were freshers, 26.9% were sophomores, 26.1% were junior, and 24.6% were senior students. The mean age was 20.62 years ($SD = 2.30$); 47.4% ($n = 345$) were male and 52.6% were female ($n = 383$). Fifteen (15) classes were selected from three (3) universities and introduced to the research with the help of their monitors. Before the questionnaires were distributed, the study was explained to the prospective respondents. With their agreement, questionnaires were distributed, completed, and collected. Master's students in psychology administered the survey under supervision. The respondents first provided personal demographic information (gender, age,

program of study and so on), after which they completed the questionnaire assessing family cohesion, sense of security, interpersonal relationships, and social adjustment.

Measures

Family Cohesion

The sixteen item sub-scale of the Family Adaptability and Cohesion Evaluation Scale II (Olson et al. 1982) introduced and revised in China by Fei (Fei et al. 1991), was used to measure family cohesion (e.g., “Family members are familiar with each other’s close friends”; “Family members can share interests with each other”). The response options ranged from 1 = *never* to 5 = *always*, and higher scores indicating stronger family cohesion (Cronbach’s alpha (α) = 0.74). Confirmatory factor analysis (CFA), used to assess construct validity (Jöreskog 1969), was applied to this study. The model fit indices (CFI = 0.94, TLI = 0.92, RMSEA = 0.07 (90% CI = 0.06, 0.09), and SRMR = 0.04) indicated good construct validity. This scale has been widely used to measure Chinese people’s family cohesion and has shown good reliability and validity (Lin et al. 2018).

Sense of Security

The Cong and An’s (2004) Sense of Security Scale used was designed to be used in China. It contains 16 items:

- Section 1 - eight items that measure interpersonal security (e.g., “I’m afraid to establish and maintain an intimate relationship with others”)

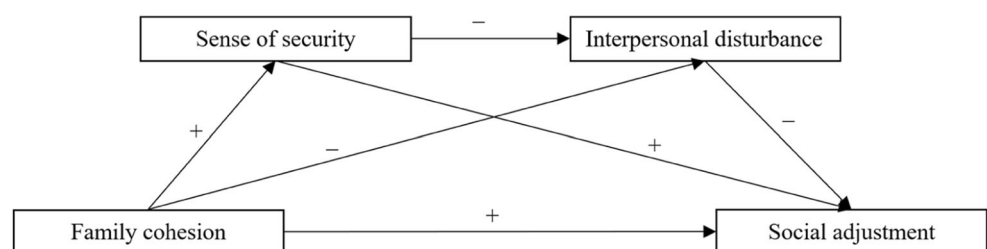
and

- Section 2 - eight items that measure sense of certainty and control over future life (e.g., “I believe that life is uncertain and unpredictable”).

The scale mainly concerns individual’s predictions about life in the contexts of certainty and a sense of control.

The response options on these 16 items ranged from 1 = absolutely the same to 5 = very different, with higher scores

Fig. 1 The conceptual model



indicating a stronger sense of security (Cronbach's $\alpha = 0.88$). The model fit indices (CFI = 0.91, TLI = 0.90, RMSEA = 0.07 (90% CI = 0.06, 0.07), and SRMR = 0.04) indicated good construct validity. This scale has also been widely used in Chinese research and has shown good reliability and validity (Zhang et al. 2018).

Interpersonal Relationships

The 28 items of the Relationship Comprehensive Assessment Questionnaire (Zheng 1999) were used to measure four aspects of interpersonal disturbance:

- behaviour disturbance in coping with social situations (e.g., “I always feel nervous on social occasions”),
- behaviour disturbance in conversations (e.g., “Continuous conversations always make me nervous”),
- behaviour disturbance in emotional regulation of interpersonal interactions (e.g., “I was always envious of others”),

and

- behaviour disturbance in interacting with members of the opposite sex (e.g., “I don't know how to get along with the opposite sex”).

These items (“1 = yes and 0 = no”) reflect university students' performance in dealing with others. Higher scores indicated more disturbances in interpersonal relationships (Cronbach's $\alpha = 0.87$). The model fit indices (CFI = 0.92, TLI = 0.91, RMSEA = 0.07 (90% CI = 0.06, 0.08), and SRMR = 0.05) indicated good construct validity. This questionnaire has shown good reliability and validity in previous studies (Liao et al. 2016).

Social Adjustment

Zheng's (1999) 20-item Social Adjustment Questionnaire was used to measure the extent of the respondents' social adjustment. This questionnaire assesses three aspects of social adjustment:

- Learning adjustment (e.g., “I'm willing to get access to new knowledge and new subjects because they are attractive and can motivate me”),
- Interpersonal adaptation (e.g., “I can get close to others easily though in a new environment”)

and,

- Life adaptation (e.g., “No matter how living conditions change, I'm able to adjust”).

The response options on the odd-numbered items were (minus 2) -2 = *yes*, 0 = *uncertain*, and 2 = *no*. The scoring of the even-numbered items was reverse-coded: 2 = *yes*, 0 = *uncertain*, and (minus 2) -2 = *no*. Higher scores indicated higher social adjustment (Cronbach's $\alpha = 0.89$). The model fit indices (CFI = 0.90, TLI = 0.92, RMSEA = 0.05 (90% CI = 0.04, 0.05), and SRMR = 0.06) indicated good construct validity. This questionnaire also showed good reliability and validity in previous study (Liao et al. 2016).

Data Analysis

The statistics software used for testing the structural equation model (SEM) was Mplus 7.0 (Muthén and Muthén 2012), which provides researchers with a flexible tool to analyse data and is often used in tests for structural equation models, particularly mediation analysis (Muthén et al. 2016). Around a dozen methods for testing hypotheses involving mediating effects have been proposed, one of the most commonly used is the causal steps strategy, popularised by Baron and Kenny (1986). More advanced approaches used to test the mediation effect, such as the bias-corrected bootstrap method, a method used to define confidence intervals based on bootstrapping (Cheung and Lau 2008). Studies have reported that the bias-corrected bootstrap tests show high levels of statistical accuracy compared to standard approaches and the advantages are relatively greater (MacKinnon 2008; MacKinnon et al. 2004). Thus, the bias-corrected bootstrap tests were selected as the method of choice and applied with a 95% confidence interval to test the statistical significance of the indirect effects in this study.

Results

The results indicated that the original assumptions were reasonable and consistent with the assumptions (Table 1). Family cohesion positively correlated with social adjustment, indicating that family cohesion may be a protecting factor of social adjustment and that it would be appropriate to explore this relationship further.

Sense of security and interpersonal disturbance were both related to family cohesion and social adjustment, which indicated that they might play a mediating role.

And a sense of security was related to interpersonal disturbance, indicating that they might have a serial multiple mediating effect.

The gender was related to sense of security and interpersonal, indicating that separate estimates were needed to made in male and female students.

The model fit results showed: CFI = 0.97, TLI = 0.95, RMSEA = 0.05 (90% CI = 0.037, 0.054), and SRMR = 0.03, which indicated the model was acceptable.

Table 1 Means (*M*), standard deviations (*SD*), and Pearson correlation (*n* = 728)

Variables	<i>M</i> ± <i>SD</i>	1	2	3	4	5
1. Gender		1				
2. Age	20.62 ± 2.30	–	1			
3. Family cohesion	64.44 ± 6.59	0.02	–0.04	1		
4. Sense of security	3.40 ± 0.60	–0.09*	0.04	0.38***	1	
5. Interpersonal disturbances	3.76 ± 10.56	0.08*	–0.03	–0.46***	–0.55***	1
6. Social adjustment	9.75 ± 5.90	–0.007	0.05	0.44***	0.53***	–0.52***

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

Notes

- IN (interpersonal security) and CE (certainty of control) are two measures related to sense of security;
- S1–S4 are four measures of social adjustment;
- F1 and F2 are two measures of family cohesion;
- CW (behaviour disturbance in coping with social situations),
- CO (behaviour disturbance in conversations),
- ER (behaviour disturbance in emotion regulation on interpersonal interactions), and
- IW (interacting with members of the opposite sex) are four measures of interpersonal relationships

As the Fig. 2 showed, there were six statistically significant direct effects determined by the path coefficient (Garson 2013). The estimates were calculated as standardized gamma (γ) coefficients. The effects of family cohesion on sense of security, interpersonal disturbance, and social adjustment were 0.46 ($p < 0.001$), -0.10 ($p < 0.05$), and 0.10 ($p < 0.05$), respectively. The effects of sense of security on interpersonal disturbance and social adjustment were -0.62 ($p < 0.001$) and 0.35 ($p < 0.001$), respectively. Interpersonal disturbance had a negative influence on social adjustment ($\gamma = -0.46$, $p < 0.001$). Bias-corrected bootstrap tests (95% confidence interval) were used to assess the statistical significance of the indirect effects of family cohesion on social adjustment (Table 2).

However, Wentzel and Feldman (1996) reported that family cohesion of male and female had different implications for their social adjustment, suggesting that the effect of family cohesion may be different between male and female students (Johnson et al. 2001). In consideration of gender differences, the participants were divided into two groups (male and female) and separate estimates were made of the relationship of the main variables. Results showed that the model fitted both group's data (Table 4). The bias-corrected bootstrap tests (95% confidence interval) of indirect effects are shown in Table 3.

A conceptual model was constructed, based on family system theory, emotional security theory and empirical research. However, given the causal nature of the data, there were viable alternative models that needed to be considered: (1) Bidirectional models imply that parent behaviour may be the

consequence of the child's behaviour (Sameroff 2009), reminding us that university students' performance might influence their parents and family. In particular, social adjustment might influence family cohesion (Alternative Model 1 family cohesion and sense of security mediated the relationship between social adjustment and interpersonal disturbance); (2) researchers have proposed that psychosocial resources could moderate the adverse effects of stressors on well-being (DeLongis et al. 1988), reminding us that sense of security (a kind of psycho-social resource) might moderate the adverse effect of poor interpersonal relationships on university students' social adjustment (Alternative Model 2 sense of security moderated the effect of interpersonal relationships on social adjustment). These two alternative models were tested and the results indicated that the alternative models did not yield a better fit to the data (Table 4). Neither of the alternative models were good fits to the data.

Discussion

This study focused on the relationship between family cohesion and university students' social adjustment. Results showed that family cohesion was positively related with the social adjustment of university students, consistent with the findings of previous studies (Meyerson et al. 2002). In modern China, the increasing divorce rates have caused that many children couldn't have a complete, harmonious family. In modern China the rise in divorce rates has caused the break up of the traditional family structure and has meant that many children have disrupted family environments. Furthermore, many Chinese parents, especially fathers, view themselves as the absolute authority in the family and don't regard their children as friends when communicating with them, which often results in family tensions and low family cohesion. It is necessary to enhance university students' social adjustment by improving their family relationships. In China, the family plays an especially important role in an individual's development and Chinese people think highly of family harmony, which is believed to be the prerequisite of wealth and an individual's success. Compared to western countries, families

may have a stronger and more enduring effect on individuals in China. Though most Chinese university students (96% of our participants) have reached adult age (18 years old), they are still very dependent on family. As a result, family cohesion might have an enduring effect on university students' social adjustment during the 4 years of university life. Family therapy could be used to promote college students' social adjustment. However, most Chinese university students are far away from home, making it difficult to carry out any family intervention practices. The mediation effect of sense of security and interpersonal disturbance was tested, aiming to provide some indicators of measures that can be taken by university counsellors.

This study explored family cohesion (family context), sense of security and interpersonal disturbance (interpersonal context) rather than focusing on single factors that affected college students' social adjustment. The role of interpersonal disturbance in the mediation process was explored and that family cohesion influenced social adjustment via sense of security, providing a broader and deeper understanding on family system theory and emotional security theory. Sense of security and interpersonal disturbance provide the bridge and link between family cohesion and social adjustment. In addition, an attempt was made to explain the effect of family

cohesion, sense of security and interpersonal relationship in a Chinese context and to understand their special meaning to Chinese. This study may also provide some suggestions, to western universities about how they might support the social and academic adjustment of students from east Asia.

The results showed that the sense of security mediated the relationship between family cohesion and social adjustment. Close family relationships may provide a sense of security for university students, possibly making them more willing to explore and contact with wider society. The findings of this study are a reminder that a sense of security is important to university students' well-being and family cohesion plays an important role in the development of their sense of security. Family intervention or other measures could be taken to improve a sense of security and hence social adjustment. Besides, universities could also take measures to promote students' social adjustment. Research has shown that campus culture has an effect on university students' psychology (Chen et al. 2016). Universities should encourage the development of a harmonious campus culture to help improve students' sense of security and further promote their social adjustment. Teachers and school administrators should pay more attention to students' daily life and mental health to create a caring environment to improve students' sense of security.

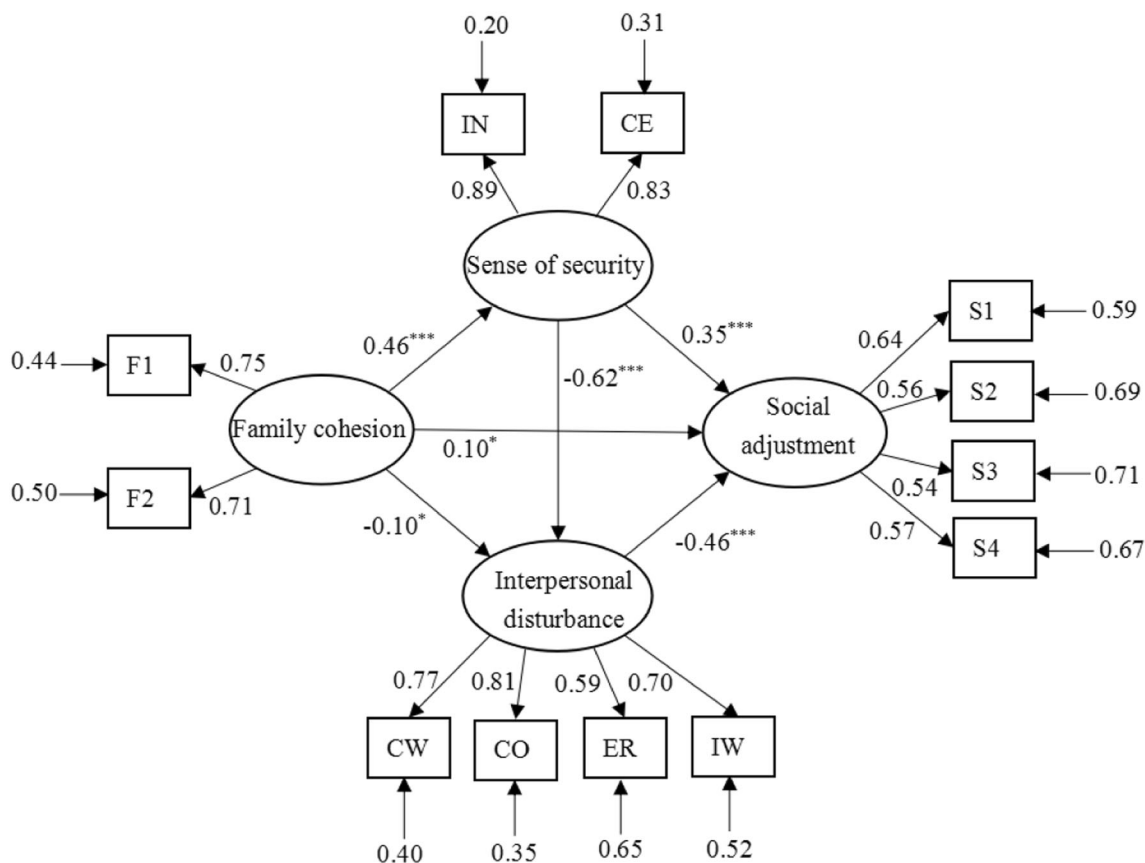


Fig. 2 SEM of direct and indirect effects of family cohesion on social adjustment

Table 2 The results of bias-corrected bootstrap tests

Indirect effects	Coefficient	Bootstrap 95% CI	Effect ratio
1. FC → SS → SA	0.163	0.092–0.246	0.37
2. FC → ID→SA	0.056	0.005–0.117	0.13
3. FC → SS → ID→SA	0.122	0.078–0.178	0.28

FC Family Cohesion, SS Sense of Security, ID Interpersonal disturbance, SA Social Adjustment

Furthermore, universities should offer psychological counselling services, which can be very helpful to the problematic students (Peker 2015), and provide counselling and support on issues involving their sense of security.

The current research also demonstrated that interpersonal disturbance mediated the relationship between family cohesion and social adjustment. University students maintaining close ties with families may have more skills and experience to deal with interpersonal relationships, and better access to the resources they need to adapt to society. Chinese people are more willing to establish a personal relationship network, which may be complex but plays a crucial role in their social life. Because in Chinese culture, people advocate collectivism, which may have an effect on the value people place on interpersonal relationships. Interpersonal relationships can be a critical social resource for Chinese people who want to be more competitive. However, in western countries people advocate individualism, suggesting that they are more independent and interpersonal relationship might have a lesser effect. In China, within the family children are always tolerated and their whims met however this may then cause many students to be unwilling to understand and be tolerant of others, leading to many unnecessary conflicts. Furthermore, students have poor interpersonal skills meaning that they find it hard to communicate with others though they want to improve interpersonal relationship. Others engage in virtual social networking but neglect interpersonal relationship in real life.

Table 3 The results of bias-corrected bootstrap tests for male/female students’ models

Gender	Indirect effects	Coefficient	Bootstrap 95% CI
Male students	FC → SS → SA	0.142	0.070–0.221
	FC → ID→SA	0.039	–0.024–0.088
	FC → SS → ID→SA	0.116	0.082–0.179
Female students	FC → SS → SA	0.157	0.081–0.225
	FC → ID→SA	0.059	0.002–0.112
	FC → SS → ID→SA	0.143	0.077–0.213

FC Family Cohesion, SS Sense of Security, ID Interpersonal disturbance, SA Social Adjustment

Table 4 The model fit indices of male/female students’ models and alternative models

Model	Model fit indices			
	CFI	TLI	RMSEA	SRMR
Male students	0.94	0.92	0.07	0.04
Female students	0.98	0.98	0.03	0.03
Alternative model 1	0.87	0.84	0.09	0.07
Alternative model 2	0.82	0.78	0.10	0.12

Corresponding measures should be taken for to tackle the problems that students are faced with. Students need to be encouraged “to put themselves in others shoes”, learn emotion regulation strategies in interpersonal communication and should make time for real social life. Besides, unlike in western countries, in China the relationship with room-mates is an important part of university students’ interpersonal relationship because most students live in the university dormitory sharing a single room with four or more other students. Dormitory life and the relationship with their room-mates should be of concern as the possible effect on students’ social adjustment (Dou et al. 2018). The dormitory manager could pay more attention to students with interpersonal issues and should they notice changes in behaviour or attitude, refer the student to a psychological counsellor, who work as the assistants to the psychological counsellors, so that psychological counsellors can do something to ensure that students are provided with timely help. The class committee members such as monitors could also help the psychological counsellors to care for classmates’ interpersonal relationships and social adjustment. Activities such as the “culture festival of dormitory” (social activities for students) could be organized to promote students’ cooperation and communication with room-mates to help improve students’ interpersonal relationship. Further help could be provided in the form of psychological counselling, community and dormitory activities, and the provision of courses related to interpersonal skills, to help students adapt.

Moreover, interpersonal disturbance not only mediated the relationship of family cohesion and social adjustment but also the relationship of sense of security and social adjustment. Close family provides university students with a sense of security to trust and relate to others, this in turn provides more resources helping social adjustment. Emotional security theory has proposed that emotional security mediates the relationship of family ties and social adjustment (Davies and Cummings 1994). In this study it further found that interpersonal relationships played an important role in this process, helping us to understand this theory.

Furthermore, the administrative modes of universities vary from east Asian and western countries. The ties between students and colleges in China are closer compared to western

countries and colleges in China could do more things to promote students' development. The same is true for many other east Asian countries because there are many similarities between the culture of them and China. For example, Confucianism is widely advocated in east Asian countries (Yuki 2003; Yum 1988). Nowadays, more and more East Asian students choose to study abroad. Living in a strange environment, they are inevitable confronted with difficulties in social adaptation (Quan et al. 2016). It may be difficult to overcome these difficulties because they are unfamiliar to western universities' support structure. In addition, the positive effect of family cohesion might be weakened because they are removed from their family. This study suggests that western universities could take suitable corresponding measures to promote east Asian students' social adjustment. For example, the university could encourage their contact with senior students coming from the same country and to get some experiences. Universities could also promote the communication between students from different regions. These measures could help to improve east Asian students' sense of security and interpersonal relationships, which further promote their social adjustment.

This study demonstrated that all four hypotheses suggested were sustainable on the basis of the evidence and analysis undertaken. In view of other possible relationships among these variables, two alternative models were tested. In model 1, the effect of social adjustment on family cohesion was considered by applying bidirectional models (Sameroff 2009), but the model didn't appear to fit the data well. In China, people are more willing to share good news with family rather than bad news in keeping with the Chinese aphorism "Report only the good to family and not the bad when away from home." When university students are faced with challenging social situations, they may not mention it to their family, causing the insignificant effect of social adjustment on family cohesion. As for alternative model 2, it was assumed that a sense of security might work as a psychological resource to weaken the adverse effect of poor interpersonal relationships. Our study found that students with higher levels of a sense of security might have lower levels of interpersonal relationships and then had better social adjustment, showing that a (good) sense of security was more likely to play a role in the mediation chain but not moderating. Students with a better sense of security are more willing to make contact with others, which would improve their interpersonal relationships and thus help them be better social adjusted (Long et al. 2017; Miczo 2004). Whereas students who lack a good sense of security have less courage to get involved with others, leading to interpersonal disturbance and then difficulties in social adjustment (Cloitre et al. 2005; Maslow 1942). The results didn't support the hypothesis that psychological resource (such as sense of security) could weaken the negative effects of risk factors (such as interpersonal disturbance). However, it was demonstrated that

psychological resource such as a good sense of security could not only promote social adjustment directly but also affected it via interpersonal disturbance indirectly. Participants were also divided into two groups, male and female, and tested against the theoretical model which found that the H3 was not supported among male students. In China, boys are expected to be more independent of parents and family and have a strong personality, which may explain why the mediating effect of interpersonal disturbance is not significant.

Limitations and Directions for Future Research

Although this study's hypotheses were supported, it has some limitations. First, with regard to the mediating effect of sense of security and interpersonal disturbance, future research could explore additional paths through which family cohesion influences university students' social adjustment. Secondly, the study focused on the effect of family factors on social adjustment, but paid no attention to the probable effect mechanism of social adjustment on family factors. Future research should explore the bidirectional relationship between family factors and social adjustment. Thirdly, this cross-sectional study design, used questionnaires to measure variables and the universities we selected were from same area. Longitudinal research should be used to explore this subject in more depth and future studies should select university students from different areas. Finally, the participants were only Chinese university students. Further research could compare the differences between Chinese and western university students.

Conclusions

This study helps explain how family cohesion influences the social adjustment of university students and tries to understand the process in Chinese culture. First, family is related to college students' development (sense of security, interpersonal relationship, social adjustment, etc.) in many ways (direct and indirect effect). Family harmony might be the foundation of interpersonal harmony and the harmony between individual and society in China. Secondly, the mediating roles of the sense of security and interpersonal disturbance extend the understanding of family system theory and emotional security theory in Chinese culture. Schools can do a lot to improve their students' sense of security and interpersonal relationship which would promote their social adjustment. Thirdly, more studies should pay attention to the adaptation challenges of east Asian students studying abroad, paying attention to the different culture and organisational approaches adopted by universities.

Compliance with Ethical Standards

Ethics Statement This study was carried out in accordance with the recommendations of The Ethics Committee of the Center for Mental Health Education and Research of a University of Finance and Economics with written informed consent from all subjects. All participants provided written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by The Ethics Committee of the Center for Mental Health Education and Research of a Chinese University of Finance and Economics.

Conflict of Interest Statement This research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. All authors declare that they have no conflict of interest with respect to this research.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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