

## ABSTRACT

Title of Dissertation: GENDER DIFFERENCES IN PARENTING,  
ADOLESCENT FUNCTIONING, AND THE  
RELATION BETWEEN PARENTING AND  
ADOLESCENT FUNCTIONING IN URBAN  
MAINLAND CHINESE FAMILIES

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Adolescents living in Mainland China generally experience high levels of demands from their parents to perform well in school, and this may negatively impact Chinese adolescents' psychological functioning (Siu & Watkins, 1997). Secondary data from 997 urban Mainland Chinese high school students from four Beijing schools were used to examine relations of parental warmth and parental control with adolescent academic achievement, depression, and anxiety. The present study also examined whether adolescent functioning and associations between parental behaviors and adolescent functioning differed by gender of the parent and child. Independent t-tests, correlations, and multiple regression analyses found no significant gender differences in adolescent academic achievement, depression, and anxiety. Overall, father's and mother's warmth were positively associated with academic achievement and negatively

associated with depression and anxiety, whereas parental control was negatively associated with academic achievement and positively associated with depression and anxiety. Paternal and maternal warmth moderated the association between paternal and maternal control and boys' and girls' depression and anxiety. There were minimal gender differences in the associations between parental behaviors and adolescent functioning. Only maternal and paternal pressure had a stronger association with boys' depression than with girls' depression. Results suggest the importance of using warmth in the parent-child dyad, especially regarding academic expectations for boys, and not basing behaviors on preconceived notions of gender roles.

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THE RELATION BETWEEN PARENTING AND ADOLESCENT FUNCTIONING IN  
URBAN MAINLAND CHINESE FAMILIES

by

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## Chapter One

### Introduction

#### *Statement of the Problem*

Academic success during high school is a concern that most children living in Mainland China have to deal with during their adolescent period of development. The value attached to a good education may carry more significance for these Chinese adolescents than their American counterparts because of the cultural emphasis and parental pressure placed on school performance (Ho, 1987). The effect of living in an environment that places academic achievement above many other interests could potentially be maladaptive for Chinese adolescents in terms of their psychological functioning, especially if they are unable to live up to expected standards (Siu & Watkins, 1997).

Research has revealed that higher levels of parental warmth/affection are related to greater academic achievement among American adolescents (Fan & Chen, 2001; Steinberg, 2001), but according to some studies, Mainland Chinese parents traditionally do not display these types of behaviors when interacting with their children in an academic context (Kao, 1995; Mau, 1997). The lack of parental warmth and support may have an adverse effect on Mainland Chinese adolescents' academic achievement, but as with parental behavioral control, very little research has been conducted to examine this relationship within the Mainland Chinese community.

Parental warmth has also been shown in some studies to have an inverse relationship with adolescent depression and anxiety, in that American children raised in homes with higher levels of this type of behavior have lower levels of depression

symptoms (Ge, Best, Conger, & Simons, 1996) and anxiety disorders (Wood, McLeod, Sigman, Hwang, & Chu, 2003). Findings from these studies are similar to initial research that has examined parental warmth and adolescent depression and anxiety in Chinese families living in China (Riley, 2003) and the United States (Kim & Ge, 2000). With regard to parental control and adolescent psychological functioning, the data on Chinese families are limited and inconsistent. Whereas some studies have found that degree of parental psychological control is related to psychological outcomes in American adolescents (Gray & Steinberg, 1999; Steinberg, 2001), the few studies that have examined parental control in Mainland Chinese families have either found a significant (Riley & Epstein, 2003) or non-significant (Chen, Liu, & Li, 2000) association between parental control and adolescent depression and anxiety.

The existing studies on parenting and adolescent psychological outcomes in Chinese families have not included the gender of both the parents and the adolescent in their analyses. Larson and Richards (1994) have argued that mothers and fathers may interact differently with their children depending on the gender of their offspring. Exploring the distinctive effects that each parent may have on boy and girl outcomes, and whether one parent has a larger influence over their children than the other, can potentially reveal a more detailed and clearer picture of the dynamics in the parent-child relationship. A review of the literature for this study produced no reports of studies that have explored gender effects on the parent-child relationship within a sample of Beijing families. Consequently, the present study's focus on gender will address a gap in current knowledge.

Although adolescents' academic achievement is a salient issue in Chinese society, their psychological health is a topic that has received very little attention, due to the cultural norm of remaining silent on matters of mental and emotional problems (Luo, 1996). According to some studies however, Chinese adolescents in the United States (Kim & Ge, 2000) and Mainland China (Liu, Kurita, Uchiyama, Okawa, Liu, & Ma, 2001) experience an equal, and sometimes higher, level of psychosocial and emotional disturbance than their non-Asian American counterparts, and some researchers believe that the pervasive and constant pressure from parents and society to do well in high school is a reason for the prevalence of adolescent depression and anxiety disorders among Chinese students (Lee, Wong, Chow, & Chang, 2006). The Chinese culture has traditionally placed a heavy emphasis on obtaining a good education, and Mainland Chinese adolescents are expected to perform well in high school in order to increase their chances of being admitted into the universities that are available in China (Lin & Fu, 1990). The value of a college education is evident by the financial (Zhou, Peverly, Xin, Huang, & Wang, 2003) and social benefits (Terenzi, 1996) that are given to individuals with a bachelor's degree. Furthermore, because of the value of collectivism, Chinese parents reap the rewards as well as any negative consequences that may arise from their children's academic performance (Chen & Li, 2000).

Given this type of cultural milieu, Mainland Chinese parents typically exert high levels of control over their children as a way to manage their progeny's school work so that it may lead to success during high school (Shek, 2006). Some studies have found that parental control that is firm and fair is related to academic achievement in American adolescents (Barber, 2002; Fan & Chen, 2001), but there is less information available as

to how control that is conceptualized as parental pressure to achieve in school is related to academic success in Mainland Chinese families, or whether gender of the parent or adolescent affects that relation. The effects that gender could have on the parent-child relationship and on adolescent functioning have been recognized as an important topic of inquiry (Laible & Carlo, 2004; Larson & Richards, 1994).

### *Purpose*

This study was designed to address significant gaps in knowledge about gender as a factor in relations between parenting behaviors and adolescent functioning in Chinese families. It examined possible gender differences in a sample of 997 Chinese adolescents in Beijing on levels of their academic performance (adolescent's demonstration on examinations of mastery of academic course content from their classes at school), depression symptoms (reported experiences of negative thoughts related to self-worth and hopelessness, negative mood states, and depressive behaviors), and anxiety (reported experiences of worry, poor concentration, sensitivity to failure, and physiological responses such as tension), and whether gender of the parents and the children affected the relationships between parental warmth (an adolescent's perception of his or her parent as affectionate and accepting, as opposed to rejecting or indifferent), parental pressure (adolescent's perceptions of parental high standards for academic achievement and dissatisfaction when the adolescent failed to meet those standards), and the combination of these two behaviors (warmth and pressure) within each parent on adolescent school performance and psychological well-being (assessed in terms of depression and anxiety). A more detailed explanation of the variables used in this study will be discussed later in the paper.

In the literature on parenting behavior, the term “control” has been used to represent a range of behaviors with which a parent restricts or directs a child’s actions. In the present study control is used more specifically to denote parental *pressure* on the adolescent to achieve in school, through demands and expectations. When other researchers have used the term “control” to define this dimension of parental behavior, this term will be used when discussing these particular studies in the literature review. For the present study, however, the term “pressure” will be used to represent parental control over children regarding academics.

Due to the lack of prior research in this area and any clear theoretical rationale for predicting particular gender effects, this study was primarily exploratory in nature. The purposes were: 1) to ascertain if gender differences existed between Beijing adolescents on academic achievement, depression, and anxiety, 2) to identify the associations and differences in associations between Beijing fathers’ and mothers’ pressure and warmth behaviors toward their children and their son’s or daughter’s academic achievement, depression, and anxiety (e.g., whether the association between paternal warmth and boys’ depression differs from that between maternal warmth and boys’ depression), 3) to examine differences in relations between parental warmth and pressure by gender of the adolescent (e.g., whether the association between paternal warmth and male depression differs from the association between paternal warmth and female depression), and 4) to test whether, for mothers and for fathers, a parent’s warmth and pressure interact in accounting for variance in boys’ and girls’ academic achievement, depression, and anxiety.

It should be noted that, with regards to the last purpose, gender differences in the interaction of warmth and pressure within each parent were not explored. While comparing how the combination of warmth and pressure within fathers and within mothers could have had different associations on children's achievement, depression, and anxiety would have been of interest to analyze (e.g., whether the association between paternal warmth and paternal pressure and boys' depression differs from the association between maternal warmth and maternal pressure and boys' depression), this aspect of gender variation in the parent-child relationship was beyond the scope of the present study.

Ecological and feminist theories were the frameworks used in this study to consider issues relevant to parenting in Beijing families. The ecological model emphasizes the individual as both a catalyst for his or her own development and as a product of external forces (e.g., the family and culture), including the effects that biological traits have on an individual, how certain aspects of parenting (e.g. parental warmth and control) may affect adolescent academic achievement and mental health, and how larger cultural values and norms influence these dimensions of parenting practices and the adolescent. The feminist perspective is used to illustrate how these cultural beliefs influence the socialization process in terms of the roles, attitudes, and behaviors that males and females are expected to fulfill.

These gender perspectives may result in fathers and mothers interacting differently with their sons and daughters, which can lead to different effects on their academic achievement and psychological functioning. In essence, ecological theory postulates that society in general can have an impact on parenting practices and



adolescent well-being, and feminist theory extends that argument by contending that societies that are patriarchal in nature (i.e., values and beliefs emphasize male dominance and superiority) are inherently male-centered and negatively biased against women. It is this form of discrimination that may create the reported gender differences in adolescent school performance, depression, anxiety, and the effects of parenting on these three outcomes.

This study explored the relations of both warmth and pressure by fathers and mothers with adolescent functioning, to ascertain how these two forms of parenting behavior by each Chinese parent are related to Chinese male and female adolescents' school performance, depression, and anxiety. A review of the literature failed to locate studies that have examined gender on such a detailed level with regard to the relationship between dimensions of parenting and adolescent functioning in Chinese families.

Furthermore, Laible and Carlo (2004) have noted that forms of parental behaviors are not enacted in a mutually exclusive manner, and oftentimes a parent will initiate more than one behavior when relating with their children. The degree to which parental warmth and parental control interact in affecting adolescent functioning by gender is still unclear (Holmbeck et al., 1998), especially within the Mainland Chinese population (Shek, 1998). By examining such gender differences within this population, this study adds to existing literature and provides a clearer picture of dynamics of the parent-child relationship within Beijing families. Results have implications for assisting parent educators, mental health professionals, and school administrators in their efforts to create culturally sensitive interventions that target parent-child relationships.

## Chapter Two

### Literature Review

Adolescence is a period of time in which children have to deal with a variety of emotional, psychological, and academic concerns. Although some issues are encountered by a large majority of this group and can be considered normative rites of passage, there are other matters that may affect a smaller subgroup of the adolescent population (Steinberg, 2001). Academic achievement and success during high school is a common concern for many adolescents and their parents, given the importance of education for individuals' future employment opportunities. Another concern for many parents is the emotional adjustment of their adolescent children, and while difficulties with anxiety and depression are less frequent in this age group than are academic problems, they still are salient matters, given the potentially significant negative effects that these disorders can have throughout life. Furthermore, there is prior evidence that problems with school performance and with anxiety and depression commonly co-occur among adolescents (Chen, Rubin, & Li, 1997; Cole, Martin, Powers, & Truglio, 1996) suggesting that it is important to identify factors that influence adolescent functioning in these areas. There are various factors that can influence the school performance of adolescents and their psychological health, including individual traits or abilities, the family system, and the larger cultural or societal setting. For Mainland Chinese adolescents, the family context, especially the parent-child relationship, plays a large role in their educational and mental development because of the strong influence that parenting practices can have on Chinese children's behaviors.

Parents within urban Mainland Chinese culture are expected to take an active role in their children's lives to ensure that their offspring will perform acts that reflect positively on the family, and one area of interest for Chinese parents is seeing their children obtain a college degree, which is of great value and worth within Mainland Chinese society (Ho, 1987). Due to the belief in collectivism in Chinese culture, the rewards and benefits received from higher education are bestowed on both adolescents and their parents. It should be noted that this emphasis on academic achievement may be less salient for families living in the rural regions of China, who are more likely to focus on their children's employment opportunities due to the lower socioeconomic status found in these regions (Ho, 1987).

Historically speaking, Mainland Chinese society and culture has generally placed a heavier value on maintaining a collectivistic (interdependent) rather than an individualistic (independent) perspective on how people should conduct their public and private lives, and this belief in collectivism is still prevalent among Mainland Chinese people (Bond, 1996; Wang, 1994). This idea of a collective whole influencing individual processes stems from the tenets and beliefs of Confucianism, which teaches its followers to adhere to the interests and goals of the larger group instead of the desires and needs of the individual, and has been the dominant religion in Mainland Chinese society for thousands of years (Ho, 1991; Hu, 1944).

The philosophy of collectivism means that emphasis is placed on maintaining family integrity, societal status, harmony, and cohesion (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). A person socialized in a collectivist culture has a tendency to act and think as an interdependent individual, meaning that he or she feels bound by duty,

obligation, and social responsibility to their family members (Markus & Kitayama, 1991). Rules and norms are defined by the family, as well as a person's concept of his or her self (Triandis et. al, 1988). Interdependent individuals value the opinions and feedback of family members much more than their own thoughts and desires, and oftentimes will shelve personal wishes and needs in order to allow the family's plans and goals to be achieved (Triandis, McCusker, & Hui, 1990). In addition, individuals who have a collectivist mentality are usually more concerned about the results of their actions on other members of the family and the positive or negative impact that their behaviors will have on the overall image of the family members (Hui & Triandis, 1986). In essence there is a symbiotic effect in which a person's mistakes and flaws become those of the family as well, and the consequences of committing a transgression are laid upon both the person and his or her household.

Thus, the collectivist nature of Chinese culture produces individuals who tend to subscribe to the beliefs and values of their family instead of developing and acting upon their own ideas and attitudes. Therefore, if parents adhere strongly to the value of a good education and consistently emphasize and teach these values to their children, then adolescents also are likely to subscribe to these beliefs and place heavy importance on achieving success in their academic work. The collectivist belief system also is likely to result in a child's inability to achieve high grades in school being interpreted by others as an indication that the parents have also failed in their duties, and fathers and mothers have to endure the same negative consequences (in the form of shame, embarrassment, and critical judgment from society) that their offspring face (Triandis et al., 1990).

Given the cultural milieu that surrounds families living in Mainland China, it is not surprising that Chinese parents utilize various practices to ensure that their children achieve academic success during high school. These school-related parenting tactics could have different influences (positive or negative) on Chinese adolescent psychological outcomes depending on what behaviors the parents use. This literature review provides background on the educational history of Mainland China, examines academic and mental health issues faced by Chinese adolescents and their parents, and explores influences that certain parenting behaviors can have on both of these aspects of adolescent functioning.

#### *Academic Achievement as a Challenge for Adolescents*

The importance of doing well in school is an issue that a majority of adolescents in general encounter during this period of their development. Generally speaking, school success in countries like the United States has been measured in a variety of ways, including high school completion, academic performance (GPA), success on standardized testing, and acceptance to college (Duckworth & Seligman, 2004). Academic achievement is of significant interest because of the positive outcomes usually associated with this outcome. Adolescents who are able to achieve academic success during their high school years have a higher probability of being admitted into a university than those who do not (Chen, 2005; Perna, 2005; Peter & Horn, 2005). Specific values of a college degree include increased income (Zhou, Peverly, Xin, Huang, & Wang, 2003), increased social status (Terenzi, 1996), improved decision-making as a consumer (Rizzo & Zeckhauser (1992) and an enhanced quality of life for offspring (An, Haveman, & Wolfe, 1993; Ribar, 1993). It should be noted that these findings do not suggest that a good

education is an absolute guarantee that an individual will reap the profits of his or her labor, only that an association has been found between academic achievement and enhanced monetary and individual well-being.

The numerous personal and social benefits gained from receiving a college degree motivate parents to encourage and sometimes pressure their adolescents to work hard and excel in their secondary level schoolwork (Baum & Payea, 2005; Dye, 1992; Fan & Chen, 2001; Ingels, Curtin, Kaufman, Alt, & Chen, 2002; Institute for Higher Education Policy, 1998). The gains from a college education can also be transferred to the parents, in that they may receive social affirmation for the guidance that they gave to their children; feel personal pride and happiness that their children have been given the tools to become successful and productive members of society, and possibly reap the financial profits from their children's careers (Baum & Payea, 2005; Perna, 2005).

*Educational history of Mainland China.* Chao (2000) and Hu (1984) have argued that education has always been given very high status and stature throughout the history of Mainland Chinese society. Galt (1929) presented an argument by J. Leighton Stuart that suggested that China's educational process has had a major influence on the development of the nation. Weber (1968) noted in his article that for twelve centuries social rank in Mainland China was determined more by qualification for office than wealth, and that these criteria for assigning political positions in the government were in turn determined by the level of education that a person was able to obtain. In other words, holding a seat in the Chinese administration afforded someone more honor, status, and power than being affluent, and the ability to secure employment in this area depended largely on a person's intelligence and mental ingenuity.

The Chinese culture has traditionally emphasized education as the sole means to personal and social rewards and benefits, and this belief is anchored in principles that have existed for thousands of years. According to Hu (1984), in pre-modern China the highest honor and glory were given to individuals who were government officials or employed at some level within the administration. Competition for these jobs was fierce, and individuals who found employment in this profession received high financial gains and positive social benefits (Ho, 1964; Hu, 1984). However, in order to qualify for a governmental position, a person needed to possess high intellect and moral aptitude, which in pre-modern China could only be obtained through formal education and the passing of the state examinations (Hu, 1984). The belief in education being the key to opportunity and positive gain stemmed from a basic and fundamental Confucian tenet that government business and responsibilities must not be assigned based on inheritance or wealth but on moral rectitude and knowledge. The only way a person would be able to obtain these abilities was through a formal education (Hu, 1984; Levenson, 1966).

According to Confucian principles, the goal of education was not to transmit knowledge or information but to help an individual internalize a set of ethical principles that would help govern human behavior in all types of situations (Hu, 1984). Education, therefore, was seen as serving the function of training scholars who would one day become state officials and leaders of China, and would be able to guide the country and its people in dealing with various issues and concerns with confidence and composure (Hu, 1984). Confucian principles equated education with moral superiority and fortitude, and possessing these internal characteristics could help an individual attain high political power and social status in pre-modern China (Levenson, 1966).

In order to be chosen to work as a government official in pre-modern Chinese society, individuals had to sit for three essay-based state civil service examinations that took place after the completion of many years of formal education at various types of private or public schools (Hu, 1984). A person was given a new degree after each successful completion of a state exam, and a higher level of education helped to increase the chance that an individual would be appointed to a more prestigious and better paying position within the government. In pre-modern China, there were three levels or degrees that a person could obtain after the completion of his formal education, which can be loosely compared to the types of degrees that are awarded to students in the United States.

The first was known as a *sheng-yuan* or bachelor's degree, and individuals were given the title of licentiate within pre-modern Chinese society. The second level of higher education was called *chu-jen* (provincial graduate) or a master's degree. The highest degree in pre-modern China was the *chin-shih* (metropolitan graduate) or doctorate. As mentioned earlier, competition for political appointments was intense due to the difficulty of the state exams and a quota system that admitted only a small number of potential employees into the ranks of government officials (Hu, 1984). Therefore individuals spent nearly all of their time studying and trying to do well at all levels of their schooling.

Because of the esteem and value placed on obtaining these degrees, Chinese males were taught at a very young age to study hard and to center their lives on achieving a good education. Chinese historians have found stories in ancient textbooks of students locking themselves in rooms for years in order to study, catching fireflies in order to have a light source for evening reading, self-inflicting physical wounds in order to stay awake



to study, and forgoing all financial and physical needs in order to succeed in their academic work (Hu, 1984). Education was seen in pre-modern China to be the great equalizer in society, in that success in school made the poor become rich and the lowly to become noble. Although this belief may be exaggerated, it speaks to the mindset inherent among people living in pre-modern China, which was that a good education was the only way a person could find happiness and peace in life (Hu, 1984; Levenson, 1966).

It should be noted that in pre-modern China, females were afforded a lower status than males; therefore little or no emphasis was placed on women obtaining a high level of knowledge. Family resources and energy were focused on males succeeding and ascending the ladder of opportunity (Hu, 1984). The students who were able to attain the degree of *chin-shih* brought honor and respect not only to themselves but their family members as well, and according to Ho (1964) and Hu (1984), the benefits gained from this degree could last for many generations.

*Academic expectations in present day Mainland China.* Given the long history of education in China and the integral role that it has played in the lives of Chinese people, some researchers have contended that obtaining a good high school education is the most salient concern facing Chinese adolescents living in present day Mainland China (Chen, Rubin, & Li, 1995; Phelps, 2005). Parents believe that formal instruction during the middle and high school years will increase the chances of getting into a university, which in Mainland China means a higher probability of finding a good and well paying job, positive social status, and greater opportunities (Lin & Chen, 1995).

Li's (2001) qualitative study of seven Mainland Chinese immigrant families living in Canada revealed that academic achievement was regarded as an honor and

source of happiness that would be bestowed upon the entire family. The families in this study believed strongly in the notion that children who completed high school and were accepted into a university would be bestowed value and prestige from their community, and these accolades would be passed on to the children's parents.

Adolescents who excel in their schoolwork may have a better chance of performing well on the national entrance exam, which is a major factor in determining whether Chinese students are admitted to universities that are available in cities such as Beijing and Shanghai (Sun 1998). A college education is considered to be of great importance in Mainland Chinese society because it symbolizes material wealth and social status, and it enhances the reputation and prestige of the family due to the belief and practice of collectivism in Mainland Chinese culture (Lin & Fu, 1990). It is believed that the inability to succeed in school brings disgrace and shame not only to the child but also to his or her family (Hsu, 1985).

As mentioned earlier, Mainland Chinese children living in urban areas of the country are socialized at an early age to focus their efforts and responsibilities on doing well at all levels of education (primary, secondary, and postsecondary). Although a relationship has not been found between educational attainment and actual financial dividends, it is reasonable to assume that the association between the long term monetary value and completion of a college education that has been found in countries like the United States would apply to a country like China, which as a whole emphasizes the significance of academic success more than any other area (Chen, Chen, Kaspar, & Noh, 2000; The Institute for Higher Education Policy, 1998).

As a result of this pervasive cultural attitude, Mainland Chinese children's educational experience is different from students living in countries such as the United States. Chinese high school students have a longer school day and are expected to take many rigorous academic subjects (Fuligni, 2001). Chinese adolescents also report spending more time studying at home and less time socializing with their peers (Crystal, Chen, Fuligni, Stevenson, Hsu, Ko, et al., 1994; Fuligni, 2001), and doing extra assignments and readings that are given to them by their parents (Lin & Chen, 1995), compared to U.S. students. In their review of journal articles, magazines, and personal interviews with Chinese children living in China, Lin and Qinghai (1995) found that Chinese students often have to take extra classes after school and during the weekends in order to prepare for the National Unified College and University Entrance Exam, which determines whether a student will be admitted into a university or college. Furthermore, the expectations that Chinese parents place on their children for level of performance tend to be very high. Lin and Qinghai (1995) reported that Chinese parents may view a ninety percent out of one hundred on an exam as only a pass instead of a good mark, and that most Chinese parents expect their child to finish in the top three in their class in order to be considered successful.

Parents are not the only ones who place a heavy burden on Chinese students to do well in school. In Mainland China, schools are evaluated based on the number of students who pass the national exam, and promotions and rewards for teachers and administrators are based on these figures (Lin & Chen, 1995). In the majority of Chinese schools, especially at the secondary level, students are tested constantly (sometimes every three or five days, sometimes every day) with a variety of practice exams that are geared toward

helping them pass the national exam. Some teachers use higher grade level textbooks to prepare their students for the three-day exam process (Lin & Chen, 1995; Xiao Xia, 1992). Students in various schools in Mainland China are oftentimes required to complete the required and optional assignments in their textbooks, in addition to any extra work that the teacher may give the students (Xiao Xia, 1992). Chinese children have described the educational system in China as difficult and burdensome (Wu, 1996) as well as a major source of stress in their lives (DuongTran, Lee, & Khoi, 1996; Siu & Watkins, 1997). It can be argued that the education that teachers impart to children living in Mainland China is difficult and very thorough, and Lin and Qinghai (1995) cite a Chinese proverb that stated, “To enable the students to shoot a mosquito, they should be equipped with anti-aircraft guns” (p. 154).

Given the educational context that surrounds Chinese adolescents in Mainland China, it is not surprising that many Chinese students have reported feeling overwhelmed and unhappy about their academic lives (Siu & Watkins, 1997; Wu, 1996). The effect that these various pressures may have on Mainland Chinese student’s psychological health could potentially be negative in nature. Before moving on to adolescent mental health issues, a discussion of gender inequality as it relates to education in Mainland Chinese society is needed.

*Gender inequality in Chinese society and education.* For most of Chinese history, women have received far less education than men (Tsui & Rich, 2002). Rawski (1979) reported that during the late nineteenth century, approximately 30 to 40 percent of Mainland Chinese men, but only 2 to 10 percent of Mainland Chinese women could read or write to some degree. This pattern of women in pre-modern China being denied

educational opportunities may have been influenced in part by the Confucian belief that men possess greater skills (e.g., physical and/or mental) or have inherently better attributes (e.g., perseverance, patience, temperament) than women, and therefore should receive a better education so that they can use their knowledge to occupy a higher status or position in society (Cho & Yada, 1994). In other words, because males are considered to have superior abilities than women, they should be provided with more educational benefits because they will perform better in this area than women. The adherence to Confucian principles may have also contributed to the idea that the best jobs should be assigned to men while women focused on household chores and duties (Tsui & Rich, 2002).

With the Communist government assuming control of China in the early 1950s, the values regarding women and education began to change (Tsui & Rich, 2002). Between the 1950s and 1980s, a nearly free primary and secondary education system meant that families could afford to send all of their children to school. A state-assigned employment system meant that the government was the entity responsible for finding jobs for women, with a consequence that corporations would be unable to discriminate against a person based on gender (Bauer, Feng, Riley, & Xiaohua, 1992). However, these two advantages only applied to families living in large urban areas of Mainland China, and the assistance received from the Chinese government did not appear to help Chinese women gain admittance into a college or university (Bauer et al., 1992; Tsui & Rich, 2002). A 1990 national survey found that among urban residents born under the Communist regime, only about 30 percent of college graduates were women, even though

the average length of schooling prior to college was 10.4 years for men and 9.4 for women (Tabulation of the 1990 population census, 1993).

Even though strides have been made in terms of the educational opportunities for Chinese women, Tsui and Rich (2002) have argued that as a whole, Mainland Chinese males may still have a slightly larger incentive than Chinese females in terms of whether to enroll in a university. Part of the reason for this is that the Chinese government abandoned its job assignment system in the late 1980s. This change allowed companies to once again make their own hiring decisions and may have provided the opportunity for some employers to pass over a woman and give a job opening to a man, even if the two employees had the same educational background (Bauer et al., 1992). Tsui and Rich (2002) contend that discrimination against women has reappeared in Chinese urban areas, particularly in the area of employment. The authors, however, do not offer data concerning how many companies engage in gender biased recruitment practices, the ratio of men to women in Chinese companies, or how widespread this phenomenon is in present day Mainland China. It should be noted that some researchers have also argued that gender discrimination may not be as prevalent in more technological or service based companies, as more employers look to hire Chinese women who are capable of working with software and computer programming and human resource/ consulting duties (Li, 2003).

Gender inequity by some corporations may have dissuaded Mainland Chinese women from seeking higher levels of education after high school because their secondary degree would not have been helpful in their search for employment. It should be noted that Tsui and Rich (2002) did not test the association between hiring practices of

companies in Mainland China and Chinese women's attitudes toward attending college in their research. It is therefore unclear whether Chinese women who may have decided against college enrollment did so because of company policies or other factors.

Wang and Staver (1997) have theorized that because of the job-placement difficulties for females during the late 1980s and early 1990s, some colleges raised their admission scores for women and imposed quotas on female students in order to try and secure only the best talent from the female population. According to Wang and Staver, the stringent rules that were applied to females might have been related to the concern in some colleges that, because of gender biased corporate hiring practices and removal of the government controlled job assignment system, women would not be viewed as good employee prospects in the Mainland Chinese labor market when compared to men. If these women were unable to locate employment because of gender discrimination, then the universities that graduated these women might be viewed in a negative manner by other institutions, funding programs, and prospective recruits. This issue may have resulted in more effort on the part of Mainland Chinese universities to ensure that the women who were accepted into their institutions had the best credentials and abilities.

Even though stricter acceptance standards may enhance a university's prestige and financial status, one possible negative consequence of imposing higher standards and limiting the number of available seats is that Mainland Chinese females may have a more difficult time of gaining admission into a university. Without access to a college education, women's employment opportunities could be hindered or damaged. Even if Mainland Chinese women are accepted into a university and are able to graduate, the job market might still be biased against women in that they may still be passed over for jobs

because of the corporate belief that Mainland Chinese men are better laborers and business leaders than their female counterparts (Cho & Yada, 1994; Wang & Staver, 1997).

It is important to note that Wang and Staver (1997) did not test their hypothesis that modifications in college admission standards for women contributed positively to their ability to secure jobs in the late 1980s and early 1990s; neither did those authors suggest that this arduous admissions process was the standard used by all Chinese universities during that period. Furthermore, Wang and Staver (1997) never conducted an investigation of which universities in China actually engaged in this type of student conscription behavior. They did not explore the reasoning behind changes to the admission standards for women, or if these practices resulted in higher female employment and elevated status for the universities. It is therefore unclear as to how many Chinese colleges participated in these enrollment procedures, why these institutions felt the need to change the rules for women, or if the outcomes proved to be successful for them and their students.

It also is uncertain whether gender discrimination in college admissions and corporate hiring practices are currently being implemented in Mainland China. If the argument made by Tsui and Rich (2002) regarding the reemergence of gender discrimination in the workplace is valid, then Chinese businesses are giving Chinese males an unfair advantage over their female counterparts. If this is the case, then it would be reasonable to assume that some universities in China may be continuing their practice of higher standards and limited quotas for women applicants, although this scenario may be less likely than the situation regarding company hiring procedures. The minimum test



scores required for entrance into colleges in Mainland China are now published in newspapers, making it more difficult to conduct gender-selective admissions (Tsui & Rich, 2002). Nevertheless, there used to be a longstanding tradition of unequal distribution of educational opportunities between males and females in Mainland China.

Although some researchers have contended that in some circumstances it may have been more difficult for Chinese female students in the past to get accepted into college (Wang & Staver, 1997) or that it may be less beneficial for them to enroll in a university in present day Mainland China (Tsui & Rich, 2002), overall the cultural climate in present day China appears to support the belief that all children should receive a good education regardless of their gender. The Chinese government enacted The Compulsory Education Law in 1986 that allows every child, irrespective of their gender, ethnicity and race, a right to compulsory schooling. The Education Law of 1995 extended the provisions of the 1986 amendment by stating that every citizen, regardless of ethnicity, race, gender, occupation, economic status and religious beliefs, should have an equal opportunity to obtain an education.

These two statutes suggest that educational opportunities are still deemed to be important for both Chinese males and females. Phelps (2005) reported on a journey made by a group of U.S. researchers to China in 2002. The trip was led by Dr. Zheng Zhou of St. John's University and consisted of a 12-member team of professionals in the fields of education, counseling psychology, and school psychology. These individuals spent one month visiting elementary schools, universities, and private schools in Beijing, Kunming, Shanghai, and Suzhou and observing the educational systems in these cities. From these field visits the group found no gender discrimination at these facilities (Phelps, 2005).

Male and female students were encouraged to perform well in their coursework and given the same educational expectations and opportunities.

Whereas this one study does not speak to the overall experiences of students living in the various cities of China, it does provide some insight as to how present day society in this country views the importance of education for children. The value and worth of an education appear to be viewed as applicable for both girls and boys, and this shift in cultural expectations can be seen to some degree in Chinese families. Data from a sample of 1,040 Chinese 8<sup>th</sup> grade students in the Wuhan city in China suggest that Chinese parents have the same high educational expectations and spend a large percentage of their income on their children's schooling, irrespective of their child's gender (Tsui & Rich, 2002). The researchers argue that this gender-neutral parental expectation is due in large part to the One Child Policy program that was implemented in 1979, which limits the number of children that a family can have to one (with some exceptions). Because Mainland Chinese families subscribe to the notion of filial piety (which is the belief that children need to care and watch over their parents' financial, emotional, and physical needs when they become adults), there is an emphasis on children securing well paying jobs when they enter into the workforce, in order to take care of their parents (Chin, 2002).

In order for this goal to be achieved, a good education must be obtained by the child. Prior to the One Child law, families could have as many children as they wanted, and it was usually the sons who were pushed to do well in school because they were seen as the breadwinner for the entire household (Goldstein, 1996). The daughters were usually assigned the job of taking care of family members and attending to the needs of

the house, and education was not deemed a priority in their lives (Tsui & Rich, 2002). Having many children could also provide better options for parents in terms of their future care, in that they had multiple progeny who could potentially attend to their needs and offer emergency relief in case one child was unable to perform his or her duties (Chin, 2002).

The advent of the One Child policy has restricted the available care that can be provided to Mainland Chinese parents, and some parents in China may now be dependent on their one child to be their financial supporter when they get older. Although a majority of people living in urban China are entitled to some form of pension or welfare payment, the amount of money is limited and not always reliable, so parents still may have to place most of their hope on the careers of their children, and the jobs that their progeny are able to secure could be influenced heavily by the level of education they achieve (Tsui & Rich, 2002). This reliance on children for future survival is greater for families who live in the rural areas of China, where pensions and other government-assistance programs are virtually non-existent (Tsui & Rich, 2002). In either situation, Mainland Chinese parents may now be starting to place the same type of pressure normally reserved for boys on girls as well, particularly because often a girl is a couple's only child, and spend the same amount of time and money on helping their daughters succeed in school.

It would appear that in present day Mainland China, girls are expected by their parents to excel and perform just as well as boys in their schoolwork, and equal importance is placed on a good education for girls and boys. Although the overall economic sector may still provide higher paying and more prestigious job positions to males upon graduation (Wang & Staver, 1997), the emphasis from a cultural perspective

seems to be that academic success should not be made exclusive for only one gender. Thus parental pressure for academic achievement is likely to be ubiquitous for both sexes, and its potential to affect adolescents' mental health must be considered. The following sections describe potential effects of academic pressure on Mainland Chinese adolescents.

### *Mental Health Problems in Adolescence*

Mental health problems can also affect the adolescent population in general, and they have received heightened attention from researchers, parents, and schools over the years, especially with increased awareness of risk for suicide among adolescents (Beautrais, 2000). The types of mental health problems that have been examined most often among adolescents are depression and anxiety disorders<sup>1</sup>. Depression has been studied in adolescence because of its potential for having a negative influence on academic adjustment, psychosocial functioning, and long term adult psychological functioning, and the role that this disorder has on the development of severe psychiatric disorders in adulthood (Chan, 1995; Cole, Martin, Powers, & Truglio, 1996; Pine, Cohen, Gurley, Brook, & Ma, 1998; Steinhausen & Metzke, 2000). According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000) a depressive episode lasts for at least two weeks and includes at least five of the following symptoms: depressed mood, loss of interest or pleasure in all or almost all activities,

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<sup>1</sup> Some researchers have contended that because of their high comorbidity, depression and anxiety should be combined to form one global construct of general internalized distress (Chen, Rubin, & Li, 1995; Dong, Yang, & Ollendick, 1994). Although depression and anxiety may share similar negative affective states, other researchers have found that non-overlapping factors existed for depression and anxiety, in that depression was found to represent a negative view of oneself and anxiety was found to represent an overall sense of danger (Clark, Steer, & Beck, 1994; Stark & Laurent, 2001; Yang, Wang, & Dong, 2000).

In terms of instrument sensitivity to these two disorders, Hodges (1990) ran convergent and discriminant validity tests on the two questionnaires that are being used for the present study, the Children's Depression Inventory (CDI) and the Revised Children's Manifest Anxiety Scale (RCMAS), and reported that the results supported using these measurements as separate assessments of depression and anxiety. Given the information regarding the differences between these two disorders, it is important to examine depression and anxiety as distinct mental health outcomes that can have varying effects on adolescent development.

significant weight loss or weight gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness, diminished ability to think or concentrate and recurrent thoughts of death.

Related symptoms include appetite and sleep disturbance, excessive crying, loss of interest or pleasure, loss of energy, feelings of worthlessness, hopelessness, or guilt, difficulty concentrating, suicidal thoughts, self-hatred, social withdraw, pessimism, a sense of failure, complaints about personal physical traits, and internal attributions of self-blame for negative events (Beck & Beamesderfer, 1974; Reynolds, 1992; Weissman, 1986). Epidemiological rates of adolescent depression have varied because of how the disorder has been defined and measured in different studies (Wittchen, Nelson, & Lachner, 1998), but Birmaher, Ryan, Williamson, Brent, Kaufman, Dahl et al., (1996) found rates ranging from 0.4% to 8.3% for current adolescent depression and rates ranging from 15% to 20% for lifetime major depressive disorder rates in their analysis of eight studies. Peterson, Compas, Brooks-Gunn, Stemmler, Ey, and Grant (1993) reviewed 14 studies and found that the median rate of depressed mood for nonclinical adolescent samples was 35%.

Anxiety issues during adolescence are similar to those of depression, in that the disorder has been linked to maladaptive social functioning in nonclinical samples, including low rates of social interaction, poor social skills, problems with peer relationships, and dependency on adults in social situations (La Greca, Dandes, Wick, Shaw & Stone, 1988; Strauss, Frame, & Forehand, 1987; Strauss, Lease, Kazdin, Dulcan, & Last, 1989). According to Livingston, Taylor, and Crawford (1988), children with anxiety disorders often suffer from headaches, stomach aches, and irritable bowel

syndrome, which may not at first be apparent as indicators of an anxiety problem. There is also the increased risk that adolescent anxiety will develop into early adulthood anxiety (Pine, et al., 1998). From a general perspective, anxiety is characterized by emotional arousal, worry about perceived threats, cognitions regarding specific or general fears, deficiencies in concentration, and physical symptoms such as sweating, heart palpitations, muscle tension, and breathing difficulties (Barlow, 2002; Dong, Yang, & Ollendick, 1994).

Due to the traditional cultural emphasis on high academic success, obtaining a good high school education usually takes precedence over most of the other issues that Chinese adolescents living in Mainland China have to face during this period of development (Siu & Watkins, 1997). The effects of living in this type of academic milieu of intensive parental pressure and high expectations can have repercussions for the mental health of Chinese children (Lee et al., 2006; Zhou et al., 2003). The opposite may also occur, however, in that students' who have high parental expectations and are able to succeed in their school work may develop a sense of pride and accomplishment, be more focused and prepared for assignments when they are adults, and receive praise from their parents for their achievements. Whether these positive outcomes occur as a result of parental pressure is not the focus of this study, but it is important to mention that excessive parental demands for academic achievement may not always lead to negative consequences for all children.

Psychosocial and emotional health and development have generally been ignored in Chinese society, and this is due in part to the cultural values that shun disclosure of personal problems to the public and the collectivistic belief that group needs are more

important than individual issues (Chen & Li, 2000; Luo, 1996). As a result, data on the mental health of Chinese adolescents are scarce, and the present study was intended to help increase knowledge in this area.

What has emerged from recent studies is that Chinese adolescents living in Hong Kong (Chan, 1995), China (Dong et al., 1994; Liu, Kurita, Uchiyama, Okawa, Liu, & Ma, 2001) and the United States (Kim & Ge, 2000) experience an equal, and sometimes higher, level of psychosocial and emotional disturbance than their American counterparts. Chan (1995) assessed depressive symptoms of 161 Chinese adolescents in Hong Kong (124 girls; mean age = 15.9) using the Beck Depression Inventory and found that 64% of the adolescents were in the depressed range and 9% fell into the severely depressed range. Chan (1995) also determined that in terms of general depressive symptom level Chinese adolescents appeared to have higher mean BDI scores than U.S. adolescents and Chinese young adults. Liu, Sun, Neiderhiser, Uchiyama, Okawa, and Rogan (2001) collected data from 1,649 Chinese adolescents (43.4% female; mean age = 14.1) in the Shandong Province of China in 1997 and found the prevalence rate for anxiety/depression to be 8.8%, with girls exhibiting more traits of anxiety and depression than boys. The available research that has been conducted on anxiety and depression in Chinese adolescents in China suggests that this is an important issue to examine. Cheung (1986) has highlighted the importance of anxiety in problems with school performance, and Lee et al., (2006) have reported that parental expectations to do well in school are highly related to adolescent psychological problems. Given the salience of academic achievement and mental health problems in adolescence in general and specifically

among Mainland Chinese teens, it is important to examine individual and contextual factors that contribute to both outcomes.

*Theoretical Frameworks for Exploring Influences on Chinese Adolescent Functioning*

Two theoretical models provided a framework for the current research study, and some of the core concepts and principles found within each theory are used to guide the conceptualization of issues and research questions being addressed. First, Bronfenbrenner's ecological perspective on human development examines individual and external influences on adolescent development and provides a framework in understanding how different levels of influence, including an adolescent's parents, the broader culture within which the family lives, and the characteristics of individual adolescent all may affect academic performance and psychological health. Ecological theory is used in this study to understand two elements that may serve as critical influences in the educational and psychosocial functioning of Chinese individuals: family and culture. The family serves as an important source of guidance for Chinese adolescents, and the behaviors enacted by Chinese parents have the potential to help or hinder the development of their children (Uba, 1994). As Chinese adolescents are directed in part by the actions of their parents, parents are also affected by the larger cultural norms and standards that surround them, and these cultural beliefs provide a template as to how parents should interact with their children (Chen & Uttal, 1988).

Second, feminist theory is used to explain the socialization process within Mainland Chinese families that has oftentimes resulted in the belief that women are not as intelligent or capable as men, and how the higher reported levels of depression and anxiety in females (Barlow, 2002; Wittchen et al., 1998) may not be based on biological



but social causes. It should be noted that these two theories were used only as general guides to conceptualizing factors that could influence gender differences in the relations between parenting behavior and adolescent functioning, and the theories themselves were not tested. Thus no tests were conducted to determine the degree to which parents in Beijing adhere to cultural values or if the present milieu in the city supports notions of male dominance or superiority. The study was based on an assumption that in general China has traditionally been patriarchal in terms of gender roles and oriented toward high academic achievement, and that families living in Beijing are more likely to have assimilated these values and beliefs in their daily interactions.

*Ecological theory and relations between Chinese parents and children.*

Bronfenbrenner's (1979) ecological theory postulated that a person's development does not exist in a vacuum but within a specific context, and that there are multiple factors that can have an effect on an individual's behaviors and attitudes. According to Bronfenbrenner (1979, 1986), there are four domains or systems that exert their influence on a person's life, and changes in one system can have consequences not only for the person but also the other three systems. The relationship that these four domains have on a person is bi-directional in that he or she is both a product of their immediate and larger environment and a catalyst for change among and within these systems.

At the center of the model, the individual's biological makeup is an influence on development. Bronfenbrenner (1989) noted that gender, age, health, temperament, intelligence, and other individual characteristics can serve as agents of change in a child's environment and impact all areas of their growth. Adolescents' personal attributes have the potential to alter their own behaviors and attitudes independent of the influences of

the four external systems, and these inherent qualities have the potential to change the course of the adolescents' development (Bronfenbrenner, 1989). For example, individuals who are born with high intelligence may be able to perform better in their school work. A person who is predisposed with a more positive emotional temperament may not be affected as much by negative life events as someone who is inherently more anxious.

Surrounding the individual in Bronfenbrenner's model are four broader domains, often characterized as concentric circles that interact with the person's characteristics and have the potential to influence the individual's development. The four domains are labeled as the microsystem, the mesosystem, the exosystem, and the macrosystem (Bronfenbrenner, 1986). The microsystem is the domain that is closest to the child and encompasses the relationships and interactions that a child has with his or her immediate environment. Structures in the microsystem include family, school, neighborhood, or child care agencies. The mesosystem consists of the connections and relationships among the structures in the microsystem (e.g., family and school or family and childcare agencies). The exosystem involves external settings that are not directly involved in the lives of children and adolescents but nevertheless can exert an influence on their development (e.g., a parent's workplace). The macrosystem consists of the larger society or culture of which that a child and his or her family are members. Although ecological theory examines all four levels, the present study emphasized the micro and macro systems of the model.

Although individual traits play a role during adolescent development, Bronfenbrenner (1989) considered the family context to be a prime example of how the microsystem can shape a child's growth and maturity, particularly within the parent-child

relationship. Parental behaviors and attitudes have the ability to affect children either positively or negatively. For example, parents who are warm and loving to their children and allow them to openly express their opinions may foster more healthy psychosocial adjustment than parents who are harsh, strict, and demonstrate little or no affection and support. In contrast, if parents who expect high achievement from their children utilize excessive and constant pressure to try to motivate their children to achieve, this may cause adolescents to perform poorly in school.

The macrosystem, which consists of the larger culture or society that surrounds a family, has the potential to exert influence on parenting styles and adolescent functioning. The macrosystem contains values and norms that may shape parental attitudes and practices, and adolescents are influenced by these cultural standards and actions through the parent-child relationship (Bronfenbrenner, 1989). For example, cultural standards may place a higher value on and provide greater rewards for individuals who have attained a postsecondary education. Parents may demonstrate their endorsement of this value by stressing to their children the need to perform well in high school in order to continue on to a postsecondary education. Culture may also dictate how parents are to interact with their children and whether interaction patterns should depend on the gender of the child. For example in a culture that focuses on parents providing for their children's physical needs, parents may provide limited emotional support and love, which might affect children's emotional well-being, and this relation may be differential by gender if the culture has different expectations for appropriate role behaviors of males and females.

Culture also may affect children's physical well-being by influencing parental physical care of the child. For example, parents may follow the practices of a country that believes in homeopathic as opposed to scientifically proven remedies to deal with pregnancy complications (Tiran & Mack, 2000). Whether these solutions prove to be effective or harmful could have an impact on the biological characteristics of a child, which could eventually lead to complications in later development.

Gender may influence impacts that each of the domains has on individual development. For example, in the microsystem, parents may display role-specific behaviors as a product of cultural influences from the macrosystem: a father might be expected to be the stern disciplinarian and authority figure to his children, whereas the mother assumes the role of nurturer and emotional supporter. These relationships might differ depending on whether the adolescent is a male or female, in that a culture may sanction the father being the stern disciplinarian toward his sons but not his daughters, and that the mother needs to be both the disciplinarian and emotional support for both males and females.

*Feminist theory and relations between Chinese parents and children.* Societal standards for how each gender should behave and think can be explained through the lens of feminist theory, which postulates that the expectations and roles that are placed on men and women are the result of socialization and the structure, opportunities, and constraints found in society, rather than innate genetic differences (White & Klein, 2002). Traditionally this process commonly results in the belief that women are not worthy of the same level of respect or value as men, and it contributed to environments in which women are placed at a disadvantage (Ingoldsby, Smith, & Miller, 2004; White & Klein,

2002). Feminist scholars examine how the larger culture can influence the social interactions that occur among people, and how this type of environment creates gender inequality in various areas of life (Ingoldsby et al., 2004; Tong, 1998).

Feminist theory defines sex as the biological status of individuals as male or female, and gender as the behaviors and social meanings ascribed to a person's sex through socialization and social construction (White & Klein, 2002). The social assignment of gender roles and acceptable behaviors for men and women create a stratified society that gives less value to the status and accomplishments of women (Ingoldsby et al., 2004). The feminist perspective can help explain how parents and adolescents in Mainland China are taught to think and behave in terms of educational expectations for males and females, as well as mothers' and fathers' parenting behaviors toward girls and boys.

One of the propositions found in feminist theory states that gender structures people's experiences in all societies (White & Klein, 2002). This principle is based on two interrelated ideas involving socialization and the social construction of gender. The socialization of gender means that females experience the world in a much different manner than males in terms of what are acceptable and unacceptable roles, behaviors, and abilities that they should possess. In other words, there are unwritten cultural rules and/or expectations regarding what women can do, how they are suppose to behave, and how they should be treated in society. For example, a woman who uses strong tactics to achieve what she wants may be viewed as aggressive and unreasonable by society, whereas a man who employs the same techniques may be described as assertive and ambitious. Another example could be the notion that women are supposed to be the

primary nurturers and caretakers of the family because they are more emotional and supportive than men. Whatever the scenario may be, feminist theory contends that cultural values and beliefs assign specific roles, behaviors, and emotions for women, regardless of whether these characteristics are valid or not.

Along with the socialization aspect of gender roles and beliefs is the idea that society is constructed in a manner that affords males greater advantages than females, irrespective of an individual's prevailing beliefs or expectations regarding gender (White & Klein, 2002). In other words, how a person or family perceives the status and position of men and women does not change the fact that existing social structures (examples include the family structure, the academic structure, the economic structure, and the governmental structure) in a manner that favors masculine traits and abilities (White & Klein, 2002). From a feminist perspective, these social organizations are influenced by the larger cultural values found in a particular society and generally results in opportunities that benefit men and hinder women in different areas of their lives (White & Klein, 2002).

For example, *prior* to 1949 educational opportunities for women in Mainland China were limited due to government supported notions of patriarchal ideology that deemed females to be cognitively inferior to males (Ho, 1986; Tsui & Rich, 2002). According to Wanhua (2004), in 1931 enrollment in China's institution of higher education totaled 44,130, of which 12.3% (5,180) were women students. Based on the existing population in China at that time (450 million), this meant that there was only one college student per 10,000 and one female college student per 100,000 (Wanhua, 2004). By 1947 the percentage of females that were enrolled in a university was 17.8%, and

Wanhua and other researchers (Jayaweera, 1997; Rai, 1994) have contended that these low enrollment numbers are one of the reasons why scholars generally examine the *development* and *growth* of Mainland Chinese women's higher education starting in 1949, when the People's Republic was founded.

The prevailing philosophy and attitude before 1949 coincided with the fact that China at that time had predominantly an agricultural economy, which involved labor intensive work that oftentimes required the help of all available family members (Tsui & Rich, 2002). Even if parents disagreed with the overall society's viewpoint regarding a woman's mental abilities and understood the value of a good education for their daughters, the social structure prior to 1949 may have dissuaded women to leave the family to pursue academic goals. Their responsibilities resided in the household because Chinese society was organized in a manner that prevented women from attaining a formal learning experience.

With regard to the present educational climate in Mainland China, at one point in time universities were increasing their admission scores and enacting quotas for their female students in response to the gender discrimination that was occurring in the labor market (Wang & Staver, 1997). These hiring practices contributed to gender inequity in both the academic and economic sectors, offering more chances and advantages for males to achieve school success and financial security. Even if a parent encouraged his or her daughter to perform well in her school work, the end result could still have been unfavorable for the girl due to the male-centered standards enacted by larger institutions in society.

It should be noted that although social structures in China generally have limited opportunities for women, the creation of the One Child Policy may have actually had some beneficial effects on females and their educational endeavors. For some Mainland Chinese parents, there may be a need to rely on their one child to take care of their future needs, although in the rural areas of China this is not the case, as the government has relaxed restrictions on the one child rule so that poor families may have more than one child in order that their progeny can provide extra financial support when they get older (Lin, 1999). Even if the parents feel prepared to provide for themselves, given the overall high status associated with education, they may emphasize educational achievement for their child, regardless of gender. With that being said, parents with only one child could be more likely to place pressure on their child to do well in school, regardless of the parent's and child's gender.

It is important to mention that even though some parents in Mainland China may need to provide their offspring with a good education to try and assure that their future interests will be protected, in present day China government officials have started developing a pension program for urban workers, especially those employed in state owned enterprises, that is similar to the retirement benefits offered to employees in the United States (Feldstein, 2004). These pension programs operate under a defined benefit (the employee receives benefits based on the number of years worked and previous wages) or defined contribution system (the employee contributes a percentage of their monthly salary to the program, and their employer matches this amount up to a certain percentage), but in either situation, the end result is that parents who live in industrialized



cities now have other options available to them in the event that their children are unable to take care of their financial needs in the future.

Feminist theory also is helpful in considering how the impact of societal norms and values social structures can influence women's personal identities, as well as how other people perceive them. In many countries, including China, these perceptions traditionally have been negative. For thousands of years, Mainland Chinese women have been regulated to a lower position in terms of power, status, privilege, and wealth than men (Tsui & Rich, 2002). This arrangement was based largely on the fact that the society in China had patriarchal beliefs and attitudes toward women, and this perspective influenced the interpretation of Confucianism principles to mean that women were physically, emotionally, and cognitively inferior than men. This cognitive weakness that women were believed to possess may have been one reason why women in pre-modern China did not receive many opportunities to obtain an education (Tsui & Rich, 2002).

The prevailing belief during this period was not only the notion of women's intellectual deficiencies in the classroom but also the appropriate roles that females were suppose to occupy in society (Lin, 2000). Chinese women's responsibilities and duties resided in the domain of the family, and they were expected to focus on the needs and concerns of their household members (Qiang, 1996). The family structure taught women to assume subservient roles within the household and to minister to the needs of the males in the family (Fang & Wark, 1998).

Some researchers have argued that gender socialization in pre-modern Mainland China could have resulted in women not being encouraged and supported to pursue their educational aspirations (Ling, 2000; Qiang, 1996). Presumably this was due to the notion

that because the most coveted jobs in China required an extensive scholastic background, and women were perceived to be unable to succeed in school due to their inherent intellectual shortcomings, it would be a waste of time and effort to provide an education for females (Qiang, 1996).

The practice of keeping women at home because of preconceived notions of their academic potential was maintained until the Communist Party assumed control in 1949, when ideas about women's scholarly aptitude began to change and females were viewed as being capable of succeeding in the academic world (Tsui & 2002). However, even though in present day Mainland China women are encouraged to attend school and do well in their studies in order to secure a profitable career in the job market, the belief system about gender inequality that existed for many centuries may still be present, especially in more rural areas (Tsui & Rich, 2002). Some rural Chinese families may still be socializing their daughters to not pursue any academic goals and focus instead on family needs. Because these women are being taught not to value a good education for their lives, their cognitive and reasoning abilities may never actually be tested in the classroom and they may have a more negative attitude toward academic achievement (Qiang, 1996; Tsui & Richards, 2002).

There are very few studies that have explored gender differences in academic achievement among Mainland Chinese adolescents, but any reported variations in exam scores or grade point average should be examined through the societal context that women in Chinese society have traditionally not been encouraged and supported in their scholarly endeavors (Tong, 1998). If cultural norms dictate that boys should be given the opportunity to attain a good education, then parents may initiate behaviors and practices

that ensure that the males have a greater probability to reach this goal than the females. Girls in turn may internalize the values of their parents and perceive school to be trivial, unnecessary, and even useless in terms of future role activities, which could potentially result in poor or uninspired academic performances. According to feminist theory, any differences in class performance found between boys and girls are due not to inherent biological imperfections but rather to differences in the ways that society views the roles and abilities of men and women and the opportunities that it provides to help them succeed in life (White & Klein, 2002).

In terms of some of the studies conducted on populations outside of Mainland China that have found higher levels of depression and anxiety among adolescent females than among males (e.g., Barlowe, 2002; Wittchen et al., 1998), the feminist perspective would argue that these dissimilarities emanate from how women are socialized to believe that they have less control over their lives than men and need to rely on the abilities of males to help them (Tong, 1998; White & Klein, 2002). Another tenet of feminist theory is that the family can be a major area for the oppression and devaluation of women (White & Klein, 2002). Through the process of socialization of cultural expectations and the patriarchal structure of the household, families can help teach women that they are weaker in all areas of their lives than men, and that they are incapable of finding solutions to their problems without male assistance and guidance (Ingoldsby et al., 2004; White & Klein, 2002).

It should be noted that not all families are bastions for the continual socialization of women into the role of submissive wife and mother. According to Almeida (1994), family dynamics are sometimes dependent on an individual's ethnicity or culture. For

example, in general the maternal clan is considered of greater importance and value than the paternal clan in Native American societies, and males in these communities are expected to assume the role of the caretaker and nurturer (Dehart, Sroufe, & Cooper, 2004). In polyandrous (the opposite of polygamous cultures) cultures such as Tibet, girls are socialized to be the leaders of the family and to be more assertive and independent than boys (Dehart et al., 2004). The point to keep in mind regarding family relationships and socialization is that societies which emphasize a patriarchal perspective regarding male and female roles and status (e.g., Mainland China) are overall more inclined to teach women to be more subservient and dependent on men (White & Klein, 2002).

Barlow (2002) has suggested that the variations in rates of depression and anxiety between males and females in the United States are partly due to the tendency of girls to be socialized at a young age to believe that they have less control over their environment than boys. Teaching girls that their locus of control is primarily external rather than internal may cause female adolescents to believe that they are unable to regulate their circumstances, which could potentially result in feelings of helplessness, uncertainty, and despair that eventually produce depression and anxiety symptoms (Barlow, Chorpita, & Turovsky, 1996).

Consistent with the socialization practices that have been reported in Western countries, women in pre-modern Mainland Chinese society were taught that men preceded them in virtually all aspects of life and that a wife's identity was created for her by her husband (Lin, 2000). Fang and Wark (1998) reviewed ancient Chinese texts and found writings by Chinese scholars that discussed the weakness of women and their constant need to be helped by men. The cultural environment in present day Mainland

China may not completely reflect all of the traditions of the past (Lin, 2000; Tsui & Rich, 2002), but feminist scholars might contend that, much like the educational issue, women may still be taught that they lack the ability to resolve their problems without a male presence.

The socialization of Mainland Chinese women to rely on others for their needs and concerns may account for the discrepancies in depression and anxiety rates between males and females that have been found in some of the studies (Dong et al., 1994; Liu et al., 2001). The feminist perspective helps to place these variations within the context of social norms and expectations rather than genetic characteristics, and presents a different perspective from the theory that females may in some manner be less capable of handling their emotional concerns because of intrinsic abilities (Tong, 1998).

In summary, Bronfenbrenner's ecological model and feminist theory help to frame the argument made in this study that adolescent development and current functioning are products of many different factors. The individual, the microsystem, and the macrosystem of the ecological model provide some understanding as to how adolescents can shape their own development and also be influenced by their external environment. Cultural values affect the practices and behaviors that parents use with their children and can also impact the biological makeup of adolescents, which in turn can influence their growth and maturity. The cultural practices and beliefs found in general society are in many ways geared toward advancing the needs of men rather than women, and the ways that adolescents perceive themselves and that parents interact with them are influenced to a great extent by social expectations for gender roles and abilities. Consequently, the following sections review prior research findings regarding Mainland

Chinese adolescent academic achievement and mental health within the context of ecological and feminist theories, focusing on gender, parenting style and cultural imperatives.

### *Gender Differences in Chinese Adolescent Functioning*

*Academic achievement.* Throughout elementary, middle, and high school, girls in the United States generally tend to earn higher grades than boys in all school subjects, including math and science (Pomerantz, Altermatt, & Saxson, 2002), graduate from high school with higher overall G.P.A.s than their male counterparts (Perkins, Kleiner, Roey, & Brown, 2004), and continue to outperform men in postsecondary education (Mau & Lynn, 2001). Standardized testing is one area in which American girls do not perform as well as American boys, as evidenced by scores on the Scholastic Aptitude Test (SAT), American College Test (ACT) and Advanced Placement exams (American Association of University Women Educational Foundation, 1998). However, for the most part girls achieve higher overall academic success than boys in the United States.

As described earlier, within Mainland Chinese society, customary cultural expectations dictated that Chinese males be given more educational opportunities due to the responsibilities that they were supposed to hold as the primary financial provider of the family. Higher expectations (i.e., academic pressure) and burdens have traditionally been placed on Chinese males to succeed in school, although Chinese females are now also expected to perform well in their studies (Campbell & Mandel, 1990; Tsui & Rice, 2002; Yang, 2004). The effects of these parental expectations on actual school performance are unclear, in that there has been limited research examining a gender difference in academic achievement in Chinese samples.

One study conducted by Cheng and Page (1989) on a sample of 256 9<sup>th</sup> grade Taiwanese students found no significant gender difference in academic performance. Although Taiwan is not a part of Mainland China, some researchers (Benjamin, 2006; Cheng & Page, 1989) have argued that Taiwanese values regarding the importance of academic achievement during high school are similar to those held by parents in Mainland China. Benjamin's (2006) study found that high school students in Taiwan and Mainland China were more focused on their academics and less on their social lives, and parents in both of these countries placed high expectations and pressure on their children to do well in school.

Tsui and Rice (2002) did not find a gender difference in mathematical achievement in their sample of 1,040 eight graders in Wuhan, China. The authors contend that this lack of a gender difference is partly due to the changes brought forth by the One Child policy, which has caused some Chinese parents to rely on their female only child to take care of them later in life. These findings by Chen and Page (1989) and Tsui and Rich (2002) suggest that the perceptions and behaviors of Chinese parents appear to be altering with regard to the value of an education for their children. Examining these changes using the ecological and feminist theoretical models may be able to provide more insight into the dynamics of the parent-child relationship. Bronfenbrenner's ecological theory would postulate that a change at the macro level of society (e.g., the One Child Policy) has led Chinese parents to emphasize the importance of high academic achievement for girls because they may need to rely on their progeny's assistance in the future, perhaps also reflecting an increase in parents' belief that their daughters are capable of accomplishing this task.

Although the One Child policy may address the lack of gender difference in academic achievement in China, the program is not applicable to families living in Taiwan. From the feminist perspective, the belief that women possess the same scholarly abilities as men could be related to a shift in both Taiwan and Mainland China concerning socialization regarding gender. It is possible that females are now being taught by their parents to be good students and to behave in a manner that will help bring academic success (e.g., diligent studying, completing all assignments, paying attention during lessons), whereas in the past women were generally seen as lacking the skills or talent needed to succeed in the classroom and therefore were socialized to be caretakers of the household. Without actual testing of current cultural values and assimilation of these beliefs by parents in Taiwan and Mainland China, however, this possible explanation for recent research findings remains speculative.

As discussed earlier, within the context of ecological and feminist theory, the lack of a gender difference in academic achievement may be due to the changing culture regarding the abilities and roles of women in Chinese society. Consequently, in the present study no gender difference was expected in academic achievement among the sample of Beijing girls and boys in this study.

*Depression and anxiety symptoms.* It can be argued that based on current literature, high academic achievement is a concern for many adolescents during their high school career, especially among Mainland Chinese children. Academic pressure could exact a heavy toll on adolescents' psychological well-being. Results from studies examining the prevalence of depression and anxiety in American adolescents appear to indicate that these two psychological outcomes manifest at different rates depending on



the gender of the child. One question of interest is whether this pattern of gender difference emerges in males and females from Mainland China.

Studies of adolescent girls in the United States generally indicate that they suffer from higher rates of depression and anxiety than American adolescent males (Barlow, 2002; Cole et al., 1999; Lewinsohn, Gotlib, Lewinsohn, Seeley, & Allen, 1998; Wittchen et al., 1998). Similarly, Liu et al.'s. (2001) study found significantly higher rates of anxiety and depression in adolescent girls than boys in China, and Hong et al.'s. (2005) investigation of 893 adolescent girls (mean age = 16.7) and 779 adolescent boys (mean age = 16.7) in Taiwan found that girls displayed higher rates of psychological distress (a combination of anxiety and depression) than boys.

Inferences regarding the higher rates of depression and anxiety among adolescent girls than among boys in China and elsewhere must be made with caution. It should not be assumed that the reason behind this difference is genetic in nature. Feminist theory would contend that gender variations in adolescent mental health may be influenced more by how boys and girls are socialized by their parents and society to deal with stressors in their lives. As mentioned earlier, if women are taught that they are incapable of handling personal problems or difficulties on their own, it may lead to a sense of helplessness and loss of control that could potentially lead to feelings of despair and anxiety. It is possible that this socialization process contributes to the higher rates of psychological distress found in Mainland Chinese females. Furthermore, the feminist framework suggests that females' emotional distress may result from living in a society that places them in a lower-status position than males and affords them fewer opportunities for personal achievement. Consequently, in the present study it was expected that Beijing adolescent

girls would display higher levels of both depression and anxiety than Beijing adolescent boys.

*Family Context: Parenting Style Dimensions*

For Chinese adolescents, academic success and psychological health may be influenced in large part by the behaviors and actions of their parents, who have traditionally placed heavy emphasis on high performance in school (Li, 2001). Before exploring specific literature on parenting behaviors and academic achievement and mental health in an effort to construct research questions for the current study, a general discussion of parenting behavior and style as an influence on adolescent functioning will first be presented.

*Parenting styles.* There is a substantial body of research conducted in the U.S. and elsewhere that has found an association between parenting behaviors and adolescent academic and psychological development (Steinberg, 2001; Stolz, Barber, Olsen, Erickson, Bradford, Maughan, & Ward, 2004). Baumrind's (1966) seminal examination of *dimensions of parenting behaviors* (e.g. degree of control) resulted in the creation of four *typologies of parenting styles*. Each parenting style contains either a high or a low level of parental warmth and a high or low level of parental behavioral control over children's behaviors (Baumrind, 1966).

According to Baumrind (1966), the authoritative parenting style is characterized by a high level of warmth and a high level of control that is firm but fair. Authoritative parents interact with their children in a supportive, affectionate manner and are involved in a warm manner in all aspects of their offspring's lives. They encourage open communication, create reasonable demands and expectations, and are firm, fair, and

consistent in establishing and enforcing guidelines, limits, and developmentally appropriate rules and tasks (high behavioral control). The second style of parenting is called authoritarian, and is characterized by low levels of warmth and high levels of behavioral control that is strict and demanding. Authoritarian parents display little affection, support, and nurturance toward their children (low warmth), and they attempt to control, shape, and restrict their children's behaviors based on a set of absolute standards, demand strict obedience and respect, and exert their power and authority in an arbitrary manner (high behavioral control).

Both authoritative and authoritarian parenting styles involve parents using high levels of control over their children's behaviors and lives. However, authoritative parents are more likely to use control as a method of helping their children develop in an appropriate manner and become responsible and mature individuals later in life, whereas authoritarian parents may use control as a way to exert their power over their children and to restrict their personal freedom when their children misbehave. Another difference is that while authoritarian parents are also involved in their children's lives like authoritative parents, there tends to be less warmth and support and more criticism and negative judgment when this behavior is exhibited by authoritarian parents.

The third parenting style, known as permissive, is characterized by high levels of warmth and low levels of behavioral control. Permissive parents act in a non-punitive, loving, supportive affirmative manner toward their children and are invested in their lives (high warmth), but also make few if any demands on them and allow them to regulate their lives without too much interference, restrictions, or guidance (low behavioral control). One of the differences between authoritative and permissive parenting is that

although parents with each of the two styles exhibit high levels of warmth and affection toward their children, permissive parents are oftentimes unwilling to reprimand their progeny when they have behaved unacceptably (low control that is lenient and unrestrictive), whereas authoritative parents will enact a punishment or penalty that is appropriate to the misdeed (high control that is firm but fair).

The fourth and final parenting style is defined as rejecting/neglecting, and it is characterized by low levels of both warmth and behavioral control. Rejecting/neglecting parents show little or no love, support, and affection toward their offspring (low warmth). These parents are generally disengaged or uninterested in the lives of their children and provide minimal guidance and restrictions over their behaviors (low behavioral control).

In addition to parental warmth and behavioral control, Steinberg (1990) added psychological control as a third dimension to the authoritative style of parenting that he believed was important for the period of adolescence. Psychological control is defined as the extent to which parents encourage and permit their adolescents to develop their own opinions and beliefs. Parents who allow their children to engage in these behaviors help their children develop psychological autonomy, which Steinberg believed was essential in developing healthy adolescent functioning. Psychological control that is more negative or destructive in nature is characterized by parental intrusiveness, overprotection, and passive-aggressive actions, and is more typical in parents who utilize an authoritarian style of behavior. Steinberg (1990) argued that this aspect of parenting was salient during adolescence because this is the period when children begin to develop independent thinking and reasoning.

It should be noted that although a large body of research has found parenting styles to be associated with adolescent psychosocial functioning, previous researchers have either measured overall parenting style (meaning that they looked at combinations of parental warmth and parental control) or selected *either* parental warmth or parental control as their variable of interest but still defined the behavior as a style of parenting (Epstein & Sanders, 2002). For example, Lamborn, Mounts, Steinberg, and Dornbusch (1991) looked at the relations of all four parenting styles as a whole (warmth and control composites) with adolescent competence and psychosocial development, whereas Epstein and Sanders (2002) examined only the dimension of parental involvement (a component of parental warmth) and adolescent school outcomes, and Finkelstein, Donenberg, and Martinovich (2001) assessed the relation between maternal behavioral control and adolescent female depression.

Thus, most commonly parenting styles are defined in terms of both of the behavioral dimensions of warmth and control. However, some researchers have defined parenting styles in terms of only one of those dimensions. For example, Steinberg (2001) has contended that warmth and behavioral control are aspects of parenting style, and that displaying one of the two behaviors could theoretically constitute a style of parenting, albeit an incomplete one. Consequently, it is difficult to compare results from various studies when some assess parenting styles that are based on both warmth and control dimensions whereas others assess styles based on only one dimension. In order to provide clarity for the literature review in the present study, when terms such as “authoritative” or “authoritarian” are used they refer to studies that examined a composite parenting style, whereas terms like “warmth” and “control” refer to elements or

dimensions of parenting behaviors that studies identified as being related to a style of parenting.

Contributing further to the confusion in assessment of parenting styles has been the addition of psychological control as a third aspect of parenting with adolescents, as well as the distinctions that some researchers (e.g., Shek, 2006) have made regarding different forms of behavioral control. Further discussion of the concept of parental control in Mainland Chinese families and how it is defined and conceptualized in the current study will be presented later.

Some researchers have asserted that culture may influence parenting styles. Generally speaking, whereas parents in Western cultures commonly employ an authoritative approach (Steinberg, 2001), an authoritarian style of parenting practices is more often endorsed by Mexican (Varela, Vernberg, Sanchez-Rosa, Riveros, Mitchell, & Mashunkashey, 2004), African American (Pittman & Chase-Lansdale, 2001) and Asian American families (Leung, Lam & Lau, 1998). Of the four parenting styles, some research has shown that children raised in authoritative homes tend to perform better in school and have better mental health than their peers who are raised in homes that are authoritarian or rejecting in parenting style (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994, Paulson, 1994). Results from these studies have led some researchers to examine why the dimensions of authoritative parenting are associated with more positive adolescent functioning. In their review of the research, Durkin (1995) and Steinberg (2001) present three possible reasons for this relationship.

The first reason is that parents who provide high levels warmth, nurturance, and support to their children help to create a high level of emotional security and comfort that helps children to be more receptive to parental influence and socialization. Parents who engage in these practices also provide explanations for their actions and are open to feedback and suggestions from their child, which promote cognitive and social competence and gives children an increased sense of self awareness. The final reason is that through the high levels of behavioral control that result in consistent and fair standards and structures that are enacted by parents, children learn about rules and responsibilities, which aid them in their social, emotional, and psychological development.

Even with the uncertainty regarding how parenting style is defined and assessed, what has consistently emerged from the literature is that both an overall parenting style and specific parenting behaviors (e.g., either warmth or control) have been found to be associated with adolescent functioning. When examining the impact of an overall parenting style, it may be difficult to determine which aspect of parenting behavior (warmth or control) had the stronger association with a particular aspect of adolescent functioning (e.g., depression). One of the benefits of separating out the warmth and control elements from a parenting style is that it can potentially provide a clearer understanding of how these components are associated with adolescent functioning, on an individual as well as a combined level. Therefore, the present study did not examine composite parenting styles but instead assessed two dimensions of parenting behaviors (warmth and control defined as pressure to achieve). The main effects of warmth and pressure, as well as their interaction effect on adolescent academic achievement,

depression, and anxiety in Beijing families were examined. A discussion of these two dimensions of parental behaviors and their associations with adolescent academic success and mental health will be presented next.

*Parenting style and adolescent functioning.* In terms of the effects that parental warmth and control have on specific adolescent functioning, some research has shown that children raised in homes with high levels of warmth that also displayed high levels of firm and fair control tend to perform better in school than their peers who were raised in homes that were high in harsh, rejecting, and excessively restrictive or controlling (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994, Paulson, 1994). Jeynes's (2003) and Fan and Chen's (2001) meta-analyses of the literature on parenting and academic achievement also found that high levels of parental warmth, involvement, and encouragement were positively associated with high levels of academic achievement, whereas high levels of parental strictness, excessive control, and unreasonable expectations were negatively associated with adolescent school performance.

With regard to parenting styles and adolescent psychological health, some studies have found that in general, children raised in homes with high levels of parental warmth, love, care, and acceptance tend to have lower levels of depressed mood (Greenberger & Chen, 1996; Greenberger, Chen, Tally, & Dong, 2000) and depression symptoms (Darling, 1999; Ge, Best, Conger, & Simons, 1996; Steinberg & Morris, 2001). Parental warmth has also been shown to help buffer adolescents against mood-lowering effects of unavoidable stressful life events (Belsky & Pinsky, 1988), and has been found to be



negatively related to anxiety disorders (Wood, McLeod, Sigman, Hwang, & Chu, 2003) and anxiety symptoms (Wolfradt, Hempel, and Miles, 2003).

Parental control that is firm and fair has also been shown to have positive results on adolescent psychological functioning (Steinberg, 2001). However, the differences in defining parental control (Wood et al., 2003) and the fact that different aspects of control have been found to relate to different areas of adolescent development (Gray & Steinberg, 1999) help to create a relationship between parental control and adolescent depression and anxiety that is at times inconsistent and ambiguous.

Wood et al.'s (2003) meta-analysis of studies that assessed children's perception of parental control and its relation to anxiety disorders found inconclusive results. One study yielded an insignificant relation between maternal control and children's anxiety levels (Siqueland, Kendall, & Steinberg, 1996), whereas another study found that fourth grade children's ratings of fathers' granting of autonomy were positively associated with teachers' ratings of childhood anxiety (Mattanah, 2001). The authors noted that the lack of consistent findings regarding parental control and adolescent anxiety may have been related to how control was measured in the studies that they reviewed (e.g., indices of behavioral vs. psychological control), which may have different impacts on adolescent psychological functioning (Gray & Steinberg, 1999).

Gray and Steinberg (1999) sampled 8,700 adolescents (50.7% female; ages 14 to 18 years old) in Wisconsin and California to examine the independent and joint contributions of three dimensions of authoritative parenting - parental support (warmth, love, and responsiveness), behavioral control (monitoring/limit setting and demandingness), and psychological control (democratic discipline and expression of

individuality) - on adolescent adjustment. Results revealed that parental support and psychological control had much stronger associations with adolescent psychosocial development than did behavioral control, and that levels of parental support and psychological (democratic) control were significantly and positively correlated with adolescent psychosocial development. Support and psychological control also were each shown to have unique predictive power in relation to psychosocial development.

*Ethnic variations in parenting style and adolescent functioning.* Although high parental warmth and firm control have been found to be related to and predictive of adolescent academic achievement, there is some debate as to what effects these dimensions of parenting have on families from different ethnic, socioeconomic, and family structure backgrounds. Steinberg's (2001) review of the parenting literature found a study conducted by Steinberg, Dornbusch, and Brown (1992) that determined that parenting involving high levels of warmth/support and high levels of behavioral control was not associated with level of adolescent school performance in African American and Asian American families.

Stolz et al., (2004) also examined the parenting style literature and noted that for some ethnic groups, notably Black and Hispanic families living in the United States, parental warmth and support did not predict adolescent achievement. In terms of adolescent psychological functioning, Khaleque and Rohner's (2002) meta-analysis of studies conducted in the United States, Africa, Asia, South America, Europe, and the Caribbean revealed that a significant negative relationship existed between parental warmth and psychological maladjustment across all of the ethnic groups. Finkelstein et al.,'s (2001) study of parental control and depression among a sample of Caucasian,

African American, and Hispanic adolescents found a significant and negative relationship between these two variables only with the African American group.

Given that there may be ethnic differences when looking at the effects of parental warmth and control on adolescent academic performance and mental health, it is reasonable to expect that the relations between parental warmth and control and Chinese adolescent functioning may be different from those that have been reported in some of the literature, although it is reasonable to expect that parental warmth and psychological functioning will be positively related in Chinese families, similar to the findings in Khaleque and Rohner's (2002) study.

*Gender variations in parenting style and adolescent functioning.* Some researchers have argued that despite the large number of studies on parenting dimensions (including parental warmth and control), there has been very little research that has examined the separate and unique influences of maternal and paternal parenting behaviors on male and female outcomes (Laible & Carlo, 2004; Shek, 1998). Although some research has suggested that parenting styles during the adolescent period are relatively similar (Baumrind, 1991; Stice & Barrera, 1995), Larson and Richards (1994) argue that mothers and fathers also have unique and different relationships with children depending on the gender of their offspring, and that it would be prudent to explore the gender of both parents and children in order to assess on a more detailed level the how gender influences the associations between parenting and children's development. The present study was designed to examine such gender effects.

Ecological theory would contend that the variations in parental behavior toward children are based largely on cultural norms and expectations regarding paternal and

maternal roles, and feminist theory would extend that argument by postulating that these cultural roles are based on preconceived notions related to gender rather than on actual ability or skill. Generally speaking, females are expected to attend to the emotional and housekeeping duties of family life while males are taught to enact instrumental roles and to teach them to their children (Uba, 1994). Both parents may socialize their daughters to focus more on traditional female responsibilities while their sons are trained in the tasks of becoming the leader of their household.

Some researchers suggest that because of different societal expectations of gender roles, mothers typically spend more time with adolescents, are involved in a wider range of activities with them, and are more likely than fathers to provide care-giving (Holmbeck et al., 1995). Conversely, fathers tend to spend more time engaged in leisure and instrumental activities with adolescents (Holmbeck et al., 1995). These interactions generally result in more mutuality, closeness, and support within the mother-child as opposed to the father-child relationship during the adolescent period (Collins & Russell, 1991).

Laible and Carlo (2004) argue that because of the different relationships that mothers and fathers have with their children, warmth/support and control from mothers and fathers may have different effects on adolescent functioning. In other words, because children are typically emotionally closer to their mothers than their fathers, maternal warmth may have a stronger relationship with adolescent anxiety and depression than paternal warmth because it has more meaning and significance for the children. In contrast, because fathers typically spend more time performing instrumental activities

and providing lessons for their children, paternal pressure may exert a heavier influence on adolescent academic achievement than maternal pressure (Holmbeck et al., 1995).

Whether these hypothesized relations exist is still unclear, due to the fact that there has been very little research on this area of gender differences in parenting and adolescent functioning, especially within the Mainland Chinese population. There has also been minimal exploration within the Beijing community of how combinations of warmth and pressure may affect adolescents differently depending on the gender of the parent and the adolescent (Laible & Carlo, 2004; Shek, 1998). Of relevance to the current study, Riley (2003) explored parental gender as a factor in the relations of parental warmth and pressure with adolescent depression and anxiety among Mainland Chinese families. However, the study did not examine the effects of the genders of both the parents and their children. No studies to date have measured gender as it relates to both parental (father and mother) warmth and pressure and adolescent (male and female) academic achievement, anxiety, and depression in a population from Beijing (Shek, 1998). This study adds to the existing literature on parenting dimensions and adolescent functioning by exploring such gender effects.

*Ethnic variations in parenting style and adolescent functioning by gender.* A review of the literature regarding the effects of gender on parenting behaviors and adolescent functioning in different ethnic groups produced very little information. Most of the research on ethnic families has explored maternal but not paternal behaviors or has not differentiated the gender of the adolescent when looking at effects of paternal and maternal actions (Finkelstein et al., 2001; Taylor, Chatters, Tucker, & Lewis, 1990). In a study mentioned earlier, Finkelstein et al., (2001) determined that maternal control had a

positive relationship with adolescent depression in African American females, but the authors noted that more research needed to be done to assess relations between paternal behaviors and adolescent functioning. Stolz et al., (2004) found that across the different ethnic groups (Cape Town, Dhaka, Beijing, Bangalore, Sarajevo, Darndstadt, Gaza Strip, Palestine, and Ogden, Utah) that were included in their study, paternal support had a stronger positive correlation with adolescent academic achievement than maternal support.

One study by Julian, McKenry, and McKelvey (1994) examined Caucasian, African American, Hispanic, and Asian American mothers' and fathers' parenting attitudes and behaviors. Results indicated that Asian American and African American parents were more likely to praise, yell, and spank their children than Caucasian and Hispanic parents, and mothers in all four groups were more likely to exhibit these behaviors than the fathers. Findings from this study suggest that parenting behaviors may differ depending on the gender of the parent, but it should be noted that Julian and her colleagues did not explore any adolescent functioning related to these behavioral differences between mothers and fathers in the various ethnic groups. Nevertheless, taken as a whole the prior studies suggest that gender may play a role in the types of behaviors that parents of varied ethnic backgrounds utilized with their children.

Although Chinese mothers and fathers tend to be equally involved and invested in the lives of their children, their socialization roles may involve different areas of focus that may mirror the interaction patterns found by parents in non-Chinese families (Laible & Carlo, 2004; Larson & Richards, 1994; Parke & Buriel, 1998). In traditional Chinese culture, the mother has been characterized as the parent who is affectionate, kind,

protective, lenient, and even indulgent, whereas the father is typically seen as a stern disciplinarian, concerned about the demands of propriety than with feelings, responsible for helping their children achieve in academics, and the parent who is feared more by children (Chao, 1994, 2001; Ho, 1986, 1987; Lau, Lew, Hau, Cheung, & Berndt, 1990; Wu & Tseng (1985). Consequently, it is reasonable to expect that the different parenting behaviors by Chinese mothers and fathers might produce different outcomes in their children as they have been found to produce in other groups of adolescents (Chen, Liu, & Li, 2000). This study was designed to address the gap in knowledge about possible gender influences the relation between Chinese parenting and adolescent academic achievement, depression, and anxiety.

#### *Parenting and Adolescent Academic Achievement in Chinese Families*

Mainland Chinese parents typically exhibit more elements of an authoritarian style of parenting than do North American parents (Chao, 1994; Dornbusch et al., 1987; Kelley, 1992; Lin & Fu, 1990) in terms of consistent and oftentimes excessive pressure or control that fathers and mothers place on their children to perform well in high school (Kao, 1995; Mau, 1997; Zhou et al., 2003). The lives of Mainland Chinese adolescents generally center on studying for their classes and engaging in activities planned by their parents that are focused on some aspect of academics (Chen, Lee, & Stevenson, 1996; Jing & Zuo, 1998). Based on Steinberg's (2001) research on the effects of parenting style on academic achievement, one might expect that Chinese students would have lower levels of academic achievement than other ethnic groups due to deleterious effects of the high levels of control and restrictions and low levels of warmth and support exhibited by their parents (Chiu, 1987; Mau, 1997). This has not proven to be the case, and in fact

Chinese children tend to outperform North American students in academic achievement (Chao, 2000; Mau, 1997; Peng & Hill, 1995; Sue & Okazaki, 1990). Some researchers have suggested that controlling parenting styles may be conceptualized as more positive and caring within Chinese families than in families in the United States. According to Chao (1994), the idea of “strictness” is sometimes equated with manifestations of parental hostility, aggression, mistrust, and dominance in Euro-American parenting, whereas for Chinese parents, their perspective regarding the word “strictness” is more positive in nature, and includes behaviors that center on concern and care for their child’s well-being.

The concept of “control” also has dissimilar implications for Chinese and Euro-American cultures, in that Chinese culture and parents view this term as more organizational and centered on maintaining family stability and harmony, while their Western counterparts sometimes define “control” as the level of dominance over children and/or imposing a set of absolute standards in their lives (Chao, 2001; Lau & Cheung, 1987). For Chinese parents, strictness and control are seen as behaviors that are meant to help rather than hurt children, and are utilized as different methods of training their progeny to follow rules and expectations (Chao, 1994). The idea of training (or *chiao shun* in Chinese) children in the rules of propriety is seen as a salient issue in the Chinese culture (Chao, 2001). Wu and Tseng (1985) have argued that a central part of this training involves parents helping their children to perform well in school, and using set standards of conduct and stringent restrictions to ensure high levels of academic achievement. In other words, Chinese parents employ school related tactics that are



actually more positive in nature but have been generally defined as harmful or counterproductive in other Western countries (Chao, 2001; Shek, 1998).

The extent to which adolescents adopt or reject the viewpoint of their parents regarding these behaviors could possibly influence their development. Riley (2003), citing research conducted by Lau and Yeung (1996), reported that if adolescents' perceived parental control as organized they exhibited lower levels of psychological problems, but if parental control was seen as restrictive then higher levels of depression and anxiety occurred.

This argument can theoretically be applied to the relationship between high parental control/strictness and adolescent academic achievement. If Chinese adolescents believe that the pressure that parents apply on them to do well in school is done out of love and concern for their well-being, then these teenagers may not be as negatively affected by these high parental expectations as their counterparts who view the pressure as harsh, burdensome, and overbearing. Although adolescent perception of parental intent was not assessed in the present study, it does provide a possible explanation as to why the negative relationship between parental pressure to achieve and adolescent academic achievement may not always be true in Chinese families.

Some researchers have identified parental control as being behavioral or psychological in nature (Barber, 2002; Steinberg, 1990), and behavioral control has been shown to have a positive relationship with adolescent academic achievement (Bean, Bush, McKenry, & Wilson, 2003; Gray & Steinberg, 1999). Shek (2005, 2006) defined behavioral control as parental attempts to control and manage a child's behavior, and suggested five different aspects related to this dimension of parenting: a) parental

knowledge (i.e., how much the parent knows about the situation of the child, b) parental expectations (i.e., parental rules and expectations of the parent), c) parental monitoring (i.e., parental surveillance and tracking and whether the parent takes initiative to understand the child, d) parental discipline (i.e., reward and punishment of the child in relation to parental expectations, and e) global parental demandingness that encompasses some of the previously mentioned behaviors.

The present study examined Chinese parents' use of behavioral control in terms of pressure that parents use to manage their children's academic behavior. Previously parental demandingness or behavioral control has been conceptualized as parental pressure in a study of parenting style and ninth grade students' academic achievement (Paulson, 1994) and in a study of parenting style and depression and anxiety among Beijing high school students (Riley, 2003). The present study was an extension of Riley's (2003) research, using her data set, in that it explored parental pressure to achieve as an element of behavioral control and how it related to adolescents' academic achievement.

Thus, a lack of cultural sensitivity of research measures used to assess parenting styles may be why Chinese students perform well in school even though their parents score high on the authoritarian style (Chao, 2001). When filling out the parenting questionnaires, Chinese parents may indicate that they exercise high, strict behavioral control and absolute standards with their children, but Chinese parents and their children may view these forms of pressure as normative and constructive; however, the impacts of these controlling parenting behaviors may be less positive on the children's psychological well-being (Chao, 1994; Chao, 2001). The present study examined adolescent

functioning that included both academic achievement and psychological well-being in terms of depression and anxiety.

Although previous studies have found that higher levels of behavioral control is associated with higher levels of academic achievement in Mainland Chinese families (e.g., Chao, 2000; Mau, 1997), other studies have found that higher levels of behavioral control were associated with lower levels of adolescent academic success. McBride-Chang and Chang (1998) examined overall parenting styles and academic achievement in a sample of 180 Hong Kong adolescents (107 girls; mean age = 15.8). The Parental Authority Questionnaire (PAQ) was used to assess parenting style, and academic achievement was measured by student self-reports of their standardized test scores from the previous years exams in Chinese, math, and English. Correlation and regression analyses found no significant associations between parenting style (authoritative and authoritarian) and adolescent academic achievement. While adolescents as a whole did not show any academic benefits from being raised in an authoritative home, there was a noted change when the data was aggregated into the different schools. McBride-Chang and Chang (1998) did indicate that parents whose students were from the highest rated academically oriented schools rated themselves as higher in authoritativeness and lower in authoritarianism than parents of adolescents from the lowest rated academically oriented schools. The nonsignificant results from this study may have also been due to the combining of authoritative parenting into one generalized measure. Results may be different if various aspects of authoritative parenting, such as parental warmth and pressure to achieve, are used as indicators of adolescent academic achievement.

Cheng, Dong, and Zhou (1997) measured overall authoritative and authoritarian parenting styles and academic achievement on a group of second grade children in Beijing ( $N = 304$ ; 143 females; mean age =7.11). The authors used the Chinese version of Block's Child Rearing Practices (CRPR) to assess parenting practices including encouragement of independence, punishment, induction, emphasis on achievement, and inhibition of affection. Results revealed that an authoritative style of parenting was positively correlated with children's academic achievement and an authoritarian style of parenting was negatively correlated with academic achievement. Cheng et al., (1997) study suggests that authoritative parenting can have beneficial effects on adolescent academic achievement, but the sample group consisted of young children as oppose to adolescents, and the author's measure of authoritative parenting did not appear to tap into the dimensions of parental warmth and pressure to achieve academically that are being examined in this study.

While not examining specific gender differences within a Chinese population, Campbell and Mandel (1990) used path analyses to determine the causal paths of parental pressure on mathematic achievement in 437 (245 females; no mean age reported) gifted and 364 (170 females; no mean age reported) average Asian American and Caucasian students. The authors used the Inventory of Parental Influence (IPI) to measure 5 areas of parenting behaviors: pressure, support, help, pressure for intellectual development, and monitoring/time management. The final path model indicated that ethnicity of the parents explained the largest amount of variance in parental pressure to achieve and parental support, which in turn was significantly and negatively associated with mathematical achievement. Specifically within the Asian American sample, higher levels of parental

pressure resulted in lower levels of academic achievement among the Asian American students. Results from this study suggest that parental pressure and support is influenced in part by ethnicity. In their discussion of the study, Campbell and Mandel (1990) indicated that while both Caucasian and Asian American parents exerted pressure on their children to achieve academic success, the Asian American parents displayed more of this behavior on their children and also demonstrated lower levels of support and encouragement. The authors also noted that the higher the level of parental pressure, the lower the scores on math exams for both ethnic groups.

Results from these studies suggest that parental behavioral control may also have a negative association with adolescent academic achievement in Chinese families, and the difference between these studies and the previous ones that found a positive association between parental control and school success could be whether adolescents perceived the demands and expectations from their parents as positive or negative in nature, and also perhaps to control being defined or measured as either aversive or benign in nature. Unfortunately, the first statement is speculative due to the lack of data regarding the perceptions of parental control by the adolescents in these studies.

These studies provide an illustration that research on parenting styles in Chinese populations in Mainland China, Hong Kong, and the United States may have different effects or outcomes than those studied in Caucasian samples. Dornbusch et al., (1987) noted that there is difficulty in directly applying various dimensions of parenting styles to different ethnic groups and that among the Asian American population, questions remain as to whether certain parenting practices have the same effect on academic achievement as it does in families from a Westernized culture and what influence gender has on this

relationship. The next section examines the role of gender on parental warmth and control (pressure to achieve) and academic achievement in Chinese families.

*Gender differences in parenting and adolescent academic achievement in Chinese families.* Chen et al., (2000) studied parental warmth, control, and indulgence and their relations to academic achievement in 258 Chinese children in Shanghai (121 girls; mean age = 11.11). The authors used the Children's Report of Parent Behavior Inventory (CRPBI) to measure these three parenting behaviors and scores on objective examinations to assess academic achievement. Regression analyses revealed that paternal and maternal parenting styles predicted different outcomes in the children regarding academic achievement, in that only paternal warmth significantly and positively predicted later social and school adjustment. Paternal and maternal control had no significant relationship with academic achievement. The authors noted that because fathers are expected to focus their attention on their children's performance and problems related to school, paternal warmth may be more relevant in this area because children rely on their fathers for guidance with their course work and studying, and children of sensitive and caring fathers may be more competent academically than their counterparts who have fathers that are cold, distant, or apply excessive pressure to achieve.

In addition to examining the relationship between overall parenting style and academic achievement, Cheng et al., (1997) also explored the moderating effects of gender on these two variables. Regression results revealed that only paternal authoritative parenting (warmth and encouragement) significantly and positively predicted children's academic achievement, while paternal authoritarian behavior (restrictive and excessive control and demands) significantly and negatively predicted children's academic

achievement. This study partially supports the argument made by Chen et al., (2000) that paternal warmth may have more significance in influencing Chinese children's academic performance, and provides some credence to the theory that Chinese fathers may have a stronger influence on their children's academic success due to the cultural expectation that fathers are responsible for their offspring's educational performance (Ho, 1987).

As mentioned previously, the negative association between parental control and adolescent achievement found in Chen et al.'s (2000) study could have been related to the students in the sample being less receptive to the academic demands placed on them by their parents. This argument is speculative in nature due to the fact that Chen et al.'s study did not assess adolescent's perception of parental intentions.

Stolz et al.'s (2004) study examined the relation between paternal and maternal support and adolescent achievement, and their results revealed that for Chinese families living in Beijing, paternal and maternal support had a significantly positive and statistically predictive relationship with male but not female academic achievement. The authors argued that parental support could have alleviated some of the excessive pressure that is traditionally placed on Chinese males to perform well in school. According to ecological and feminist theory, this finding could be viewed as support for the notion that a culture that validates the educational attainment of men but not women would be more inclined to support parental behaviors that help males to succeed in school. For the male participants in the study, the benefit of receiving warmth and support from their parents may have acted as a buffer against pressure and helped them gain higher achievement levels.

Kim and Rohner (2002) assessed parental warmth, parental control, parental involvement, and adolescent achievement in a sample of 245 Korean American students (134 females with a mean age of 13.9; 11 males with a mean age of 13.8). The researchers used the Parental Acceptance-Rejection/Control Questionnaire to assess the level of parental warmth and control and constructed a 12-item scale based off the work of Steinberg and his colleagues to measure parental involvement. Academic achievement was measured using a student's grade point average (G.P.A.). Correlation analyses revealed that perceived paternal and maternal warmth were significantly and positively related to the student's G.P.A., whereas perceived paternal and maternal control had no significant relationship with adolescent academic achievement. Kim and Rohner (2002) study examined the dimensions of paternal and maternal warmth and found a relationship with academic achievement among Korean American adolescents, but more research is needed to examine whether this association holds true or is different in a sample of Mainland Chinese adolescents.

#### *Summary of Findings on Parenting and Adolescent Academic Achievement in Chinese Families*

From some of the research that has been conducted on the Chinese population, it would appear that there are relationships between parental warmth and pressure and adolescent academic achievement, although findings from these studies suggest different outcomes depending on the gender of the parent and/or the adolescent. Due to the heavy cultural emphasis on academic achievement, Chinese parents are expected to socialize their children in the importance of doing well in school, and fathers and mothers assume an equal role in this education process (Ho, 1987). Although the Cheng et al. (1997) and



Chen et al. (2000) studies only found paternal warmth to be positively related to and predictive of adolescent achievement, maternal warmth may still have some influence on academic success, and this effect may be more evident if adolescents are examined separately by gender, as was the case in the Stolz et al. (2004) study. With regard to parental pressure, higher expectations were associated with lower levels of academic performance, in terms of lower math scores (Campbell & Mandel, 1990). It should be noted that the data in Campbell and Mandel's study were based on examining Asian Americans as one large group as opposed to several different ethnic entities. Results from this study, however, provide information as to the effects that parental pressure to achieve may have on academic outcomes.

The lack of data regarding the effect of gender on the relationship between parenting and adolescent academic success makes this issue an important one to study within Mainland Chinese families. Analyzing how paternal and maternal behaviors influence academic performance in male and female adolescents may offer greater detail as to the nature of the parent-child relationship in Chinese families, which is largely influenced by how the culture perceives the roles, duties, and intrinsic value of males and females. For example, although traditional cultural expectations may have dictated that parents in Mainland China exert high control and little warmth toward their children with regard to their academic achievement, current social trends may support the idea of balance in both parents' behaviors and even the need to utilize more warmth and support (Chao, 2001).

Although parental behaviors may be changing, the overall belief that Chinese males in China should still be afforded more educational opportunities than Chinese

females could potentially affect how warmth and control influence Chinese adolescents. If Chinese boys are taught to believe that an education is the key to personal and social success, then parental efforts may have a larger impact on their academic results because there is the belief that doing well in school will lead to a rewarding future. For Chinese girls, if the prevailing societal belief is that a good education will not amount to large financial gain and self-fulfillment for women, then they may not be as enthusiastic about their academic pursuits even with the encouragement of their parents (Yang, 2004). Chinese female students may view education as not worth the time and effort because it will not produce the desired outcome, and therefore be less responsive to their parents' interventions (Yang, 2004). So even though one societal expectation may encourage similar warm behaviors for parents when engaging their male and female children in their academic work, another social norm (superiority of males) may be negating positive effects that parents have on their children's school success.

Because research into the individual effects that fathers' and mothers' behaviors have on male and female adolescent's academic achievement has not yet been conducted in Mainland China, the present study was exploratory in nature. Gender-related research questions that are described in the section on hypotheses and research questions were based on the limited research that has been conducted with Chinese families and on concepts from ecological and feminist theories regarding potential gender effects of parenting behaviors on adolescent academic achievement.

#### *Parenting and Adolescent Anxiety and Depression in Chinese Families*

Some studies that have examined authoritative parenting and adolescent psychosocial adjustment in Mainland Chinese (Chen et al., 2000; Riley, 2003) and

Chinese American (Kim & Ge, 2000) families have found that parental warmth alone (Chen et al., 2000; Kim & Ge, 2000) and parental warmth and pressure (Riley, 2003) have influences on children's depression and anxiety. Unlike parental behavioral control, some researchers have contended that parental warmth has the same meaning in Chinese culture as it does in Western culture (Ho, 1986; Lau, Lew, Hau, Cheung, & Bernt, 1990), which may be why studies on the relation between parental warmth and adolescent psychological health within Chinese families have yielded results that are more consistent with those from studies on adolescents from a Western culture (Greenberger et al., 2000; Wood et al., 2003)

It would appear from Gray and Steinberg's (1999) research that parental support and psychological control have a larger impact on adolescent psychosocial functioning than behavioral control, which has been shown in some studies to have more of a significant relationship with academic achievement (Bean et al., 2003). Although no significant relationship was found between behavioral control and psychological functioning in Gray and Steinberg's (1999) study, this does not mean that behavioral control has no association with adolescent mental health. The effect of behavioral control may change if it is defined or measured in a manner that has significance or meaning to a particular population. For Chinese adolescents, achieving academic success generally takes priority over many other issues or concerns in their lives (Mau, 1997), and if behavioral control is defined as perceived pressure from parents to excel in school, then this conceptualization of control could have an impact on the mental condition of Chinese adolescents.

A review of the literature revealed only one study that examined control as perceived pressure to achieve in school and its relation to Chinese adolescent psychological health. Riley (2003) assessed 997 high school students from 4 different secondary schools in Beijing on their perceived levels of parental warmth, parental pressure to achieve, anxiety, and depression. The authors used the Parental Acceptance/Rejection Questionnaire (PARQ) to measure parental warmth, the Inventory of Parental Influence (IPI) to measure parental pressure to achieve, the Child Depression Inventory (CDI) to measure depression, the Revised Children's Manifest Anxiety Scale (RCMAS) to measure anxiety, and the mean of three exam scores in Chinese, English, and math to measure academic achievement. Correlation analyses revealed that perceived parental warmth was significantly and negatively associated with both adolescent depression and anxiety, while parental pressure to achieve (defined as an element of parental control) was significantly and positively associated with adolescent depression and anxiety. The present study used the same data set for a more refined analysis of gender effects in relations between parental pressure and warmth and adolescent functioning.

Results from Riley's (2003) study and other studies suggest that parental warmth and control (or pressure in Riley's study) can have an influence on adolescent depression and anxiety, in that parental warmth may act as a buffer against the negative impact of parental pressure on adolescent distress, but more data are needed to examine whether this relationship changes as a result of gender, which has been shown thus far to have an impact on adolescent academic achievement and parenting practices. The next section

examines parenting behaviors and adolescent psychological functioning within the context of gender.

*Gender differences in parenting and adolescent depression and anxiety in Chinese families.* Although gender was not included formally as a moderator variable in the study, Riley (2003) did conduct exploratory analyses and found that boys had a higher, significant correlation than girls between parental pressure to achieve and anxiety and parental pressure to achieve and depression. Riley (2003) also conducted analyses that examined the different effects of paternal and maternal pressure and warmth on adolescent anxiety and depression. Their results indicated that the negative correlation between parental warmth and adolescent depression was significantly stronger for mothers than fathers. This suggests that for this sample, mothers' warmth and support had more of an influence on adolescent depression than did that of fathers, which supports the conclusions made in previous studies with Chinese (Chao & Sue, 1996; Chen et al., 2000), Caucasian (Laible & Carlo, 2004), and African American (Pittman & Chase-Lansdale, 2001) adolescents of the importance of mothers in the emotional support of their children. The present study extended Riley's research by examining whether the positive effects of maternal warmth on adolescent depression differ as a function of gender of the child, and also if the nonsignificant effect that paternal warmth had on adolescent depression is consistent across gender of the adolescent.

Chen et al. (2000) studied parental warmth and indulgence and their relations to psychological adjustment in a group of young Chinese adolescents in Shanghai. Parental warmth was measured using the Children's Report of Parent Behavior Inventory (CRPBI) and depression was assessed using the Childhood Depression Inventory (CDI).

Results indicated that high maternal as opposed to paternal warmth significantly predicted lower depressive symptoms in children. Chen et al's. study was also one of the few found in the literature that examined the influence of parental control (assessed in terms of level of monitoring and behavioral control) on Chinese adolescent depression and anxiety. Results from this analysis yielded non-significant relationship with these two measures of psychological functioning.

*Summary of Parenting and Adolescent Depression and Anxiety in Chinese Families*

Based on data from the few studies that have been found in the literature, it appears that Chinese paternal and maternal parenting behaviors are associated with adolescent mental health outcomes, and that in most of the cases, maternal behaviors have a stronger relationship to adolescent mental health. What is missing from the research is an exploration of gender for both parents and adolescents and how this variable may influence the relationship between parenting dimensions and adolescent depression and anxiety.

If cultural values dictate that females are weaker than males and are unable to resolve problems or issues without help, then maternal and paternal warmth may have a greater impact on Mainland Chinese adolescent girls because they may be socialized to believe that they need extra support and encouragement in order to overcome their obstacles. Chinese male adolescents, on the other hand, may have been socialized to be self-reliant and independent and thus may not be as affected by parental warmth and support. However, because it is still unclear as to the direction of the association that exists between paternal and maternal warmth and pressure on male and female depression

and anxiety, and whether paternal and maternal behaviors have different effects on male and female mental health, the present study was exploratory in nature.

*Summary of Family Context Influences on Adolescent Functioning.*

The available literature on parenting behaviors and adolescent functioning suggests that an association exists between parental actions and children's academic and psychological functioning. Gender effects in this relationship have not been fully explored, so the specific effects of the parent-child relationship on adolescent development in Mainland Chinese families still need further examination. Given the potential influence that parents have on their children, this topic is especially salient for Chinese families. The data that have been presented so far reveal how singular actions on the part of each parent could possibly affect a child's school success and mental health, but parental behaviors rarely occur in a mutually exclusive manner. In other words, parents do not exhibit only one particular behavior with their children but utilize different types of actions when interacting with their children. Parents can be both warm and controlling toward their children, and some researchers (Holmbeck et al., 1998; Laible & Carlo, 2004; Shek, 1998) have argued that the interaction of different types of behaviors on the part of each parent is important to study, as such combinations may have some bearing on adolescent functioning. However, there has been little research on this topic within the Mainland Chinese population, and the present study was designed to address this gap in knowledge.

In spite of the substantial amount of research on effects of parenting behavior on children and adolescents, no studies have explored how the presence of combinations of degrees of warmth and pressure within fathers and within mothers may influence male

and female adolescents. Thus, the present study's examination of pressure by warmth interaction effects is an important extension of prior research. Given the absence of evidence in this area, the research questions related to these potential associations are all exploratory.

### *Summary of Literature Review*

Two dimensions of parenting style, parental warmth and parental control (including pressure), have been found in some prior research to be related to adolescent academic success, depression, and anxiety. However, these relationships have not been fully explored in regard to Beijing families; neither have combinations of parental gender and adolescent's gender been explored in terms of how they may affect the relation between parenting behavior and adolescent functioning. Some studies have found that gender differences exist in parenting practices and in adolescent functioning, whereas others have determined that the association between parenting and adolescent development varies as a function of gender of the parent or of the child. The present study examined differences in the association between parenting dimensions and child outcomes when the genders of both the parent and the child are taken into account.

### *Definitions of Variables in the Present Study*

*Parental pressure to achieve* was an independent variable and was defined in this study as an adolescent's perceptions of parental high standards for academic achievement and dissatisfaction when the adolescent failed to meet those standards. The perception of pressure included (a) urging from the parents to perform at higher levels, (b) disapproval of the child's level of effort in school, and (c) the child's belief that he or she cannot meet parental expectations. *Parental warmth* was an independent and moderator variable and



was defined as an adolescent's perception of his or her parent as affectionate and accepting, as opposed to rejecting or indifferent. *Adolescent depression* was a dependent variable and was defined as reported experiences of negative thoughts related to self-worth and hopelessness, behaviors including excessive crying, sleeping or eating problems, feelings of sadness or loneliness, and suicidality. *Adolescent anxiety* was a dependent variable and was defined as reported experiences of worry, poor concentration, physiological reactions such as sweating or breathing problems, negative social-evaluative fears, and sensitivity about failure. Unlike the study conducted by Riley, the present study also assessed academic achievement as a dependent variable. *Academic achievement* was defined as the adolescent's demonstration of mastery of academic course content from their classes at school. This study also extended Riley's research by examining possible gender differences in relations between parenting behaviors and adolescent depression, anxiety, and academic achievement, comparing effects for combinations of parent's gender and adolescent's gender.

## Research Questions and Hypotheses

Based on the findings of prior research and on ecological and feminist theoretical concepts regarding the relations between parenting behavior and child functioning, the following research questions and hypotheses were addressed in this study. This section also includes the research model created for the present study.

### *Research Question 1*

Is there an association between parental warmth and adolescent functioning (academic achievement, depression, anxiety) and between parental pressure and adolescent functioning?

### *Research Question 2*

Do fathers' warmth and pressure interact and do mothers' warmth and pressure interact in influencing boys' and girls' academic achievement, depression, and anxiety?

### *Research Question 3*

Are there differences between Mainland Chinese mothers and fathers and between boys and girls in the relations between dimensions of parenting behavior (warmth and pressure) and adolescents' academic achievement, depression, and anxiety?

### *Research Question 4*

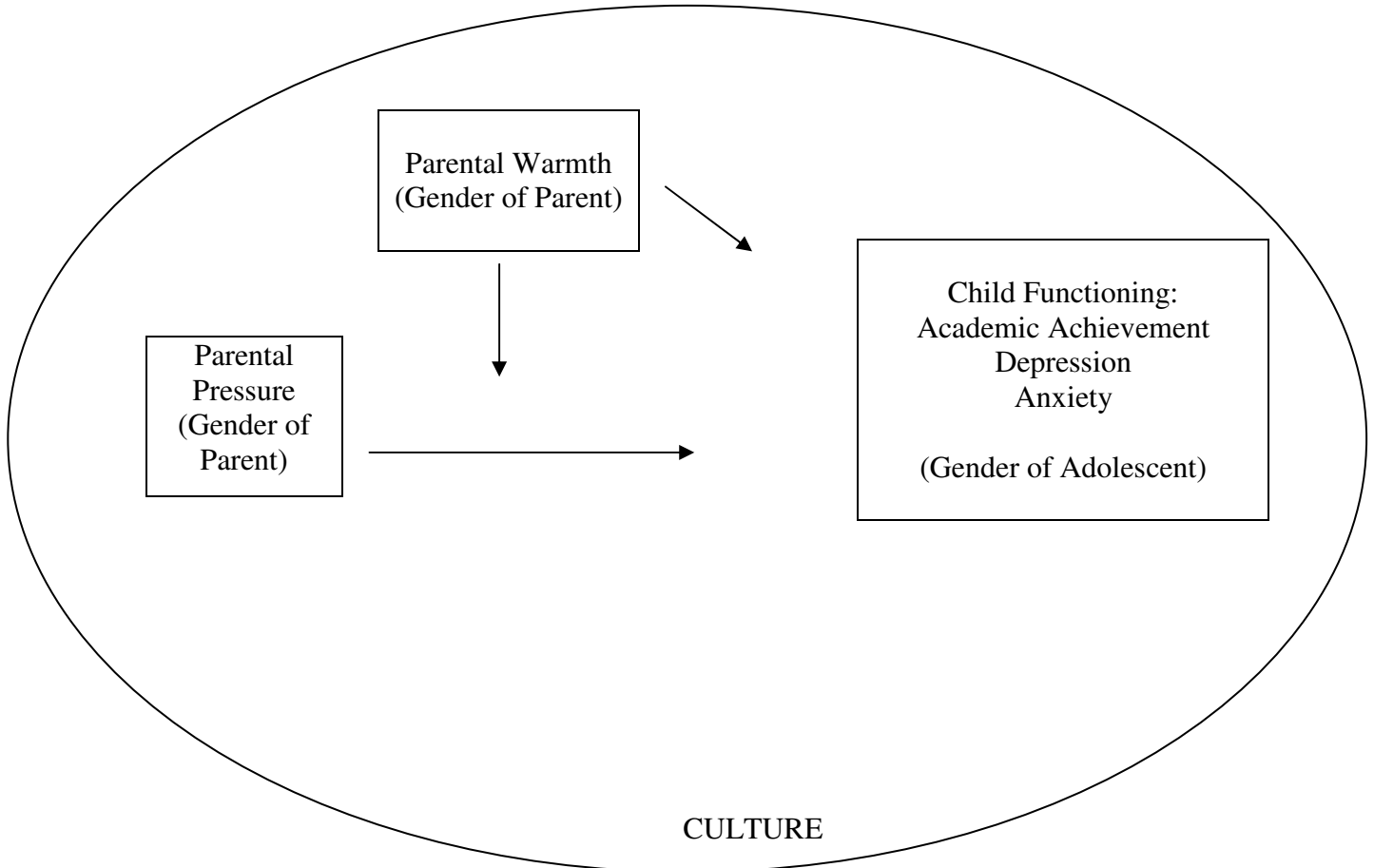
Do gender differences exist in academic achievement and mental health among Mainland Chinese adolescents?

No significant difference in academic achievement was expected between Chinese males and Chinese females.

Hypothesis 1a: Chinese females will display higher levels of depression than Chinese males.

Hypothesis 1b: Chinese females will display higher levels of anxiety than Chinese males.

Figure 1. Research Model<sup>2</sup>



Bronfenbrenner's ecological theory helps at a general level to conceptualize the relations among the variables in the research model used in the present study. The parental microsystem is seen as having an influence on the functioning of adolescents, and the overall culture that surrounds these Beijing families may affect the type and level of behaviors displayed by the parents, although as noted previously, culture was not tested as a variable.

<sup>2</sup> The parentheses around gender for parents and adolescents indicate that gender is a moderator variable

## Chapter Three

### Method

This study used data collected by Riley (2003) in February, 2003 to study the effects of parenting behaviors on adolescent academic achievement, anxiety, and depression. The entire sample and all of the questionnaires used in Riley's original study were used in the present study. This section describes the procedures used by Riley to collect the data, including modifications made to the standardized instruments and coding methods. No alterations or additions to the instruments and sample were made for the present study. The only difference in terms of methodology in the current study was that the researcher did not use Riley's recalculated means for adolescent depression and anxiety; a further explanation of this procedure is presented later in this chapter.

#### *Sample*

997 students attending one of four high schools in Beijing, China: Beijing University Middle School, No. 80 Middle School, No. 2 Middle School, and No. 3 Middle School, participated in the study. Riley (2003) compiled the questionnaires and sent them to Beijing where Dr. Xiaoyi Fang and his team of researchers in the Department of Psychology at Beijing Normal University collected the data during February, 2003. More information regarding the specific procedures utilized by Riley will be described later.

The term "middle school" in China is equivalent to the term "high school" in the U.S. Chinese students in this sample attended Grades 1 through 3 and ranged in age from 16 to 19. These grades are equivalent to Grades 10 through 12 in the U.S. Classrooms

were randomly selected to participate from each of the four schools, and the participants represented approximately 15% of the total enrollment of the four schools.

Beijing University Middle School and No. 80 Middle School were designated as “key” schools, whereas No. 2 Middle School and No. 3 Middle School were categorized as “ordinary” schools. The reason why the previous researcher selected the two different types of schools was to try to enhance the diversity of the sample of adolescents, to allow for a greater level of generalizability of findings to the larger population of Mainland Chinese high school students (Riley, 2003). Nevertheless, it should be noted that the sample is not representative of all Mainland Chinese families. Features of key schools include stringent entrance requirements and students who represent the high end of academic achievement. Ordinary schools have relatively lax entrance requirements, with fewer students continuing their education at a university. All schools are co-educational. Table 1 provides a breakdown several characteristics of the four schools, including number of student participants, gender, mean age, and parental demographics.

Table 1

*Characteristics of the Four Study Schools*

	<b>Beijing Univ. Middle (High) School</b>	<b>No. 80 Middle (High) School</b>	<b>No. 2 Middle (High) School (Tong District)</b>	<b>No. 3 Middle (High) School</b>
<b>School Type</b>	Key	Key	Ordinary	Ordinary
<b>Family Income*</b>	> \$854/month	\$731 - \$1220/month	< \$366/month	< \$366/month
<b><i>n</i> Respondents</b>	200	305	215	277
<b>Gender % Male/Female</b>	56/44	49/51	40/60	47/53
<b>Age Mean</b>	16.6	16.6	17.1	16.8
<b>Father % College Grad</b>	74.5	27.1	7.3	23.7
<b>Mother % College Grad</b>	64.3	22.4	4.6	20.2
<b>Exam Mean (SD)</b>	228 (22)	212 (24)	188 (28)	194 (24)
<b>Ambition for College Mean (SD)</b>	6.86 (1.17)	6.63 (1.11)	6.57 (1.17)	6.79 (1.16)
<b>IPI Parental Pressure Mean (SD)</b>	39.91 (10.98)	42.08 (13.25)	52.38 (13.18)	48.76 (11.67)
<b>PARQ Parental Warmth Mean (SD)</b>	117.70 (18.15)	119.04 (16.58)	108.72 (20.91)	113.04 (18.53)
<b>RCMAS Adolescent Anxiety Mean (SD)</b>	36.48 (5.42)	39.21 (5.96)	39.43 (5.77)	38.45 (5.99)
<b>CDI Adolescent Depression Mean (SD)</b>	38.91 (6.11)	42.88 (7.38)	41.99 (7.60)	43.02 (8.1)

*Note.* Family income was originally reported in Renminbi (yuan) per month. The exchange rate was established as \$1.00 = 8.2 Renminbi. Foreign Exchange Table, *Washington Post*, 9/24/03. Ambition = student's score on scale assessing ambition and intent to attend college; IPI = Inventory of Parental Influence; PARQ = Parental Acceptance Rejection Questionnaire; RCMAS = Revised Children's Manifest Anxiety Scale; CDI = Children's Depression Inventory.

It should be noted that previous research has shown student's ambition and parental education to also be associated with adolescent academic achievement, depression, and anxiety. A discussion of the need to control for these two variables is presented later in the study.

### *Procedure*

Riley (2003) used a convenience sampling method to collect the data. Although the use of a convenience sample may have affected the degree of randomness of the sampling of participants' characteristics, the students targeted for recruitment were believed to be representative of adolescents in key and ordinary high schools in Beijing (Riley, 2003). Only children's perceptions, not parents' perceptions, were measured for the four variables of parental pressure, parental warmth, adolescent depression and adolescent anxiety; whereas academic achievement was assessed in terms of the students' actual exam scores.

As mentioned earlier, the original researcher (Riley) worked in conjunction with Dr. Xiaoyi Fang, a professor at Beijing Normal University, who had previously established a relationship with school officials supportive of mental health research. Dr. Fang is a professor and child psychologist with extensive research experience in child development. Through a University of Maryland doctoral student, ChengShuang Ji, the co-investigator of the original study, Dr. Norman Epstein, contacted Dr. Fang, who expressed interest in collaborating on the study. Dr. Fang was assisted by graduate students in the psychology department at Beijing Normal University (Riley, 2003).

Riley compiled Chinese versions of the questionnaires and sent them to Dr. Fang. Prior to distributing the surveys, a team of researchers from Beijing Normal University

contacted both the principal and vice-principal in each of the four Beijing high schools. After these school officials had given their permission to conduct the study, the team of researchers visited each of the four schools and randomly selected several classrooms from each of the three grade levels. All of the students from these selected classrooms were invited to participate in the study (See Appendix A for the number of students who participated in the study by school and grade level).

The researchers sent an announcement/invitation letter describing the study and a consent form home with all students from the selected classrooms (See Appendix for a copy of invitation letter and Appendix C for a copy of the consent form). The announcement explained the purpose, design and benefits of the research study, and its approval by school officials. Students and their parents were informed that participation in the study was voluntary, noting that no teachers or administrators would know which students chose to participate, and that there were no negative consequences from choosing not to participate.

Students who provided written consent to fill out the questionnaires and had written parental consent were given time in the classroom to complete them. Teachers in participating classrooms left the room, and Beijing Normal University researchers administered the forms. The questionnaires included no information regarding the identities of the respondents. The measures were all distributed and collected within the classroom by the researchers, and non-participants were free to study quietly. The time required to complete the surveys was approximately one hour.

As mentioned earlier, all questionnaires were distributed and completed by the students during February, 2003. Dr. Xiaoyi Fang, along with his team of graduate student



researchers from Beijing Normal University, collected the data from the high school students, entered the data into a computer database with no information that could identify the participants, and then sent the SPSS file back to the original researcher (Riley, 2003).

### *Measures*

Riley (2003) measured parental warmth using the child form of the *Parental Acceptance Rejection Questionnaire* (PARQ; Rohner, 1984), which has been used in several studies mentioned earlier (e.g., Kim & Rohner, 2002). The PARQ is a self-report questionnaire that asks children to reflect on the way their parents treat them and assesses behavior in terms of four subscales: (a) perceived warmth and affection, (b) perceived hostility and aggression, (c) perceived indifference and neglect, and (d) perceived undifferentiated rejection. The complete questionnaire contains 60 questions, but for this study, only the Warmth/Affection subscale was used.

The Warmth/Affection subscale consists of 19 items (see Appendix D for list of questions) that respondents answer using a 4-point Likert scale ranging from 1 (almost never true) to 4 (almost always true). Total scores can range from 19 to 76, with higher scores indicating greater perceived parental warmth. Rohner (1984) notes that although the questions are written to assess children's perceptions of their mothers, who are usually the primary caretakers, the instrument can easily be changed to assess perceptions of fathers as well, by changing the word from "mother" to "father" in the questions. Participants in Riley's (2003) study answered both a Child PARQ (Warmth/Affection subscale) – Mother Version and a Child PARQ (Warmth/Affection subscale) - Father

Version to allow separate analyses of the relations between paternal versus maternal warmth and child symptoms.

Riley (2003) obtained a Chinese translation of an abbreviated Child PARQ from the scale's author. The translation combined select questions from each of the four subscales for a total of 32 questions out of the original 60 in the complete questionnaire, 8 of which were from the Warmth/Affection subscale. Using this translation as a guide, Riley (2003) recruited native Mandarin (the dialect commonly used in Beijing) speakers from the University of Maryland to translate the remaining 11 questions in the Warmth/Affection subscale to provide a complete set of 19 translated Warmth/Affection questions for the Child PARQ. Riley (2003) then had the translations back-translated by separate Mandarin speakers to insure that the translation captured the precise nuances and meanings of the original questions.

With regard to the PARQ, Rohner (1984) established concurrent, convergent and discriminant validity by examining the correlations of the four PARQ subscales with three scales from Schaefer's (1964) Child's Report of Parent Behavior Inventory (CRPBI) and one scale from Bronfenbrenner's Parental Behavior Questionnaire (Rohner, 1984). Rohner (1984) found that the correlation between the PARQ Warmth/Affection subscale and the CRPBI Acceptance validation scale was significant ( $r = .83; p < .001$ ), evidence of high concurrent validity of this subscale. The Cronbach coefficient alpha in Rohner's (1984) study for the Child PARQ Warmth/Affection subscale was .90, indicating high internal consistency of items within this scale.

Rohner (1984) used cross-cultural research on parental acceptance and rejection that included holocultural methods (statistically measuring the relationship between

variables in a large number of anthropological reports from more than one hundred countries), ethnographic and socialization research, and social-psychological and developmental research with individual communities to create the PARQ. This questionnaire has been used in dozens of countries and languages (Rohner, 1984). In a study measuring perceived parental warmth over a two year period for a Chinese sample, the PARQ had an internal consistency of .84 and .83 at Times 1 and 2, respectively (Chen, Rubin, & Li, 1997).

Riley (2003) used the pressure subscale of the *Inventory of Parental Influence* (IPI; Campbell, 1994) to assess adolescents' perceptions of parental pressure to achieve. The IPI originally consists of a series of subscales designed to identify family members' perceptions of the following family processes: parental pressure, psychological support, parental help, emphasis on intellectual development, and monitoring/time management. Only the questions related to parental pressure was used in Riley's (2003) study in order to assess adolescents' perceptions of the pressure that they perceive from their parents to achieve academically.

The IPI subscale that measures pressure to achieve does not differentiate between paternal and maternal pressure to achieve, but rather assesses parental pressure as a single factor. Even though one study found that children rated parent attributes similarly even when their parents reported varying roles, behaviors and expectations (Chen, Lui, & Li, 2000), it is likely that mothers and fathers may vary in their levels of achievement orientation for their children. Consequently, Riley (2003) modified the IPI so that an analysis of gender differences in parenting behaviors could be assessed. Riley replaced each question about parents with separate questions for fathers and mothers, retaining the

wording of the original items except for references to “mother” or “father” rather than “parents.”

The IPI Parental Pressure subscale is a 5-point Likert scale that consists of 9 statements to which respondents express their degree of agreement or disagreement (see Appendix E). Scoring for the IPI Parental Pressure subscale is as follows: strongly disagree = 1 point, disagree = 2 points, uncertain = 3 points, agree = 4 points, and strongly agree = 5 points. Total scores on the IPI Parental Pressure subscale can range from 9 to 45, with higher scores indicating higher levels of perceived parental pressure to obtain high academic achievement.

The IPI was established to be culturally valid in cross-national studies, specifically in studies of 700 academic Olympians from five countries (Campbell, 1996). Riley (2003) used Campbell’s (1994) Chinese translation for her study. Campbell made some modifications to the original IPI instrument during tests with Chinese students and parents in order to reflect items that were ambiguous in the local setting. These changes resulted in the reduction in the number of questions on the Parental Pressure factor from thirteen to nine. Questions eliminated from the original IPI in the pilot testing consisted of the following: “I think I could do well in school, but my parents feel I could do better;” “I am basically lazy, and if it were not for my parents I would not be doing as well as I am in school;” “When it comes to school, my parents expect the impossible;” “I don’t think I’m as smart as my parents think I am.”

Reliability for the IPI Pressure Factor has been established using Cronbach’s alpha to determine internal consistency. In one study using the IPI to examine the relationship between home environment and academic self-concepts, the alpha reliability

coefficient for pressure was .96 (Verna, 1996). In a more recent analysis of the IPI with 700 academic Olympians from 5 countries, the coefficient alpha reliability for the Parental Pressure Factor was .83 (Campbell, 2002).

Adolescent depression, a dependent variable, was measured in Riley's (2003) study using the *Children's Depression Inventory* (CDI; Kovacs, 1983). The CDI contains 27 items that measure depressive symptoms in children and adolescents between the ages of 8 and 17 (see Appendix F). Each item consists of three statements that describe a range of symptom severity, from no to severe symptoms. Respondents select the statement from each group that describes them best for the past two weeks, such as "I never have fun at school" to "I have fun at school many times." The items are scored 0, 1, or 2, with a higher score indicative of a higher level of severity of disturbance. A total score is obtained by summing all the items, with total scores potentially ranging from 0 to 54.

Riley used the Chinese version of the CDI that was translated by the publisher, Multi-Health Systems. In terms of the reliability of the CDI within a Chinese population, a coefficient alpha of .84 for the CDI was found in a sample of Chinese adolescents (Chen, Rubin, & Li, 1995). In that study, the authors considered the CDI to be content-valid on the basis of the fact that items in the measure were similar to the descriptions of depressive symptoms in Chinese children. Chen et al. (2000) reported that Chinese children 12 to 14 years old did not have difficulty understanding the items.

To measure adolescent anxiety, Riley (2003) used the *Revised Children's Manifest Anxiety Scale* (RCMAS; Reynolds & Richmond, 1985). The RCMAS is a 37-item scale designed to assess anxiety-related symptoms using a yes/no response format

(Reynolds & Richmond, 1985). There are five subscales in the RCMAS: (a) Total Anxiety, (b) Physiological Anxiety, (c) Worry-Over-Sensitivity, (d) Social Concerns-Concentration, and (e) Lie Scale (see Appendix G). The Total Anxiety score and the subscale scores are determined by the number of “yes” responses to the corresponding items, with higher scores indicative of higher levels of anxiety. All of the negatively keyed items found in the Lie subscale are designed to assess whether a child was making a valid attempt to respond to the content of the anxiety subscales or was simply marking “yes” to every item or trying to please the examiner. The 9-item Lie subscale was not included in Riley’s (2003) study. Dong et al., (1994) used the RCMAS in their study with Chinese children and adolescents and reported a coefficient alpha of .71, which according to the authors was comparable to estimates for Western samples (Dong et al., 1994).

Riley (2003) obtained permission from Western Psychological Services to translate the RCMAS into Chinese. Riley (2003) had the RCMAS translated into Chinese by a native Mandarin speaking graduate student at the University of Maryland, and then had separate native Mandarin speakers back-translate the instrument to insure the translation was consistent with the original meaning.

Although academic achievement was not a part of the original hypotheses in the Riley (2003) study, data were collected that allowed measurement of academic achievement. Semester exam scores from three subject areas in Chinese, mathematics, and English were collected and averaged to obtain a mean achievement score for each of the participants in the study. A description of this procedure is included in the data coding section.

### *Data Coding*

All of the following information regarding data coding methods for demographic characteristics and instruments is found in Riley's (2003) master's degree thesis and remains unaltered in the present study with the exception of the recalculation of group and individual means for the RCMAS and the CDI for adolescents.

*Demographic Information.* Each respondent was assigned a three-digit identification number, starting at 001 and ending with 997. The child's gender was coded as 1 for males and 2 for females. The three grades of school were coded as 1 for Grade 1, 2 for Grade 2, and 3 for Grade 3, which equate to grades 10, 11, and 12 in the U.S. Ages were coded as the students' actual ages in years. Schools were coded as 1 for Beijing University Middle School, 2 for No. 80 Middle School, 3 for No. 2 Middle School, and 4 for No. 3 Middle School.

Students were asked to identify family members with whom they currently lived. Answers were coded as: 1 = father, 2 = mother, 3 = sister, 4 = brother, 5 = paternal grandfather, 6 = paternal grandmother, 7 = maternal grandfather, 8 = maternal grandmother, 9 = aunt (father's sister), 10 = uncle (father's brother), 11 = cousin, 12.1 = step-mother, 12.2 = classmate, 12.3 = family friend, 12.4 = aunt (father's friend), 12.5 = aunt (mother's sister), and 12.6 = step-father. The coding scales used for parent education level and occupation can be found in Appendix H.

Exam scores, the index of academic performance, were calculated by adding the numeric scores for Chinese Literature, English, and Mathematics mid-year exams and calculating the mean score for each student. Before the means were calculated, a handful

of responses that had been coded as “0” were eliminated, because a “0” score was interpreted as a non-response or missing data.

#### *Coding of Instruments*

*Parental Acceptance/Rejection Questionnaire (PARQ).* For the PARQ, the instrument to measure warmth, the researchers in Beijing entered the data so that 1 = Almost Always True, 2 = Sometimes True, 3 = Rarely True, and 4 = Almost Never True. The questions in the warmth/affection subscale of the PARQ are worded in the affirmative, such as “My mother tells me how proud she is of me when I am good” and “My mother makes me feel what I do is important.” In order to achieve consistency across all instruments so that a high score would reflect a high level of the variable being measured, these entries were reverse scored so that 1 was recoded as 4, 2 as 3, 3 as 2, and 4 as 1.

A single score for parental warmth for each student was created by adding together the answers to the 38 PARQ questions. In order to examine possible gender differences between mother’s warmth and father’s warmth, the 19 questions pertaining to maternal warmth constituted the Mother Warmth score and the 19 questions pertaining to paternal warmth constituted the Father Warmth score.

*Inventory of Parental Influence (IPI).* The IPI measure for parental pressure was coded so that 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, and 5 = Strongly Agree. No reverse scoring was necessary as higher scores reflect higher degrees of perceived pressure. A total Pressure score was calculated by adding the child’s responses to all 18 IPI questions. A Father Pressure score was calculated by adding the



responses to questions 1 through 9, and a Mother Pressure score was calculated by adding the responses to questions 10 through 18.

*Revised Child Manifestation Anxiety Scale (RCMAS)*. The students' responses to items of the RCMAS questionnaire used to measure anxiety were coded so that Yes = 1 and No = 2. Standard test administration and scoring for the RCMAS involves coding Yes = 1 and No = 0. The current investigator did not alter the coding procedures used in Riley's (2003) study. The only change made in the present study was that the recalculation of the RCMAS scores by subtracting 28 from each individual's total anxiety score was not replicated in the present study. Overall and gender-specific mean scores for anxiety were presented in their original values. In other words, the current researcher did not subtract 28 from each individual score, overall mean score, and gender specific mean score on anxiety. Therefore the possible range for anxiety scores for the present study was 28-56. This procedure of not altering the individual's score and mean scores was also maintained with the overall and gender specific mean scores for adolescent depression.

The reason for not recalculating the group means for the RCMAS and also the CDI in the present study was that the previous researcher was interested in comparing Mainland Chinese high school student group means on depression and anxiety with high school student group mean scores from the United States, which was not a area of interest for the current researcher.

*Child Depression Inventory (CDI)*. The CDI used to assess depression was recoded by the Chinese researchers so that an answer of 0 = 1, 1 = 2, and 2 = 3. Test procedures required that thirteen questions (numbers 2, 5, 7, 8, 10, 11, 13, 15, 16, 18, 21, 24, and 25) be reverse scored, which was done so that 0 = 3, 1 = 2 and 2 = 1 for these

questions. Each student's total score was then calculated by adding the original or recoded responses to all of the items. Adjustments were made in the original study after running the analyses in order to allow comparisons between the results of the study and those that used the more standard scoring of the CDI (0 = 0, 1 = 1 and 2 = 2). As mentioned earlier, the present study did not conduct a recalculation of means for depression; thus the potential range of scores for depression was 0-81.

## Chapter Four

### Results

#### *Overview of Data Analyses*

The following is a general overview of the various statistical tests that were used to answer the research questions of this study. Detailed descriptions of the processes used to conduct these analyses are provided in subsequent sections. Descriptive statistics for the instruments are reported for the overall sample and for each individual gender. Results are then discussed in terms of associations found between parental behaviors and adolescent functioning. Gender differences between adolescents in terms of academic achievement, depression, and anxiety are presented, along with comparisons by gender regarding the relations between parental behaviors and adolescent academic achievement, depression, and anxiety.

For Research Questions 1 and 2, multiple regression analyses were the primary statistical tests used to examine associations between parental behaviors (including the interaction between parental warmth and pressure) and adolescent functioning (achievement, depression and anxiety). Because of the design of multiple regression analyses, Pearson correlations were conducted as follow up analyses in order to ascertain if predictor variables had significant associations with the criterion variables when examined individually as opposed to all together in the regression analyses. In order to investigate whether gender differences exist for these associations (research question # 3), the test for the differences between two correlation coefficients was computed between zero-order correlations involving fathers versus mothers and between correlations involving male versus female adolescents.

For the three hypotheses related to Research Question 4, three separate independent samples *t*-tests were run to ascertain if gender differences existed in academic achievement, depression, and anxiety among the sample of Mainland Chinese adolescents in this study. Although the term “control” has been cited often in the literature review to describe a parent’s use of pressure to monitor their child’s school behavior as well as to encompass a variety of other actions that parents use to direct, motivate, and constrain their children’s behavior, for in this description of analyses the term “pressure” is used to identify the form of controlling behavior identified in the dataset.

#### *Descriptive Statistics*

Descriptive statistics for the sample are presented in the following tables. They are based on the data collected by Riley (2003), but unlike Riley’s study they are broken down by the genders of both the adolescent and the parent. The mean scores for overall adolescent depression and anxiety are also dissimilar between the present study and those reported by Riley (2003). Riley compared the mean scores on depression and anxiety for the sample of Chinese students with the mean scores of adolescents in the United States and Hong Kong that were obtained in prior studies with the measures. As mentioned earlier, to allow such comparisons Riley subtracted 28 from each student’s PARQ score and 27 from each student’s CDI score to reflect the scoring procedure used in the original instruments.

As a result of this manipulation, Riley’s overall mean scores were 14.83 (*SD* = 7.56) for adolescent depression and 10.51 (*SD* = 5.90) for adolescent anxiety. In the present study, the researcher did not use adjusted mean scores for these outcome

variables; thus, overall and gender specific mean scores for depression and anxiety did not involve a subtraction of 27 for depression and 28 for anxiety as was the case in Riley’s study. Even though this minor difference between the two studies exists, and it has no effect on relations between parental variables and adolescents’ anxiety and depression scores, information from Riley’s (2003) study pertaining to how this sample of Mainland Chinese adolescents compared to their Western peers on the CDI and RCMAS will be presented later, in order to provide a clear picture regarding the relative levels of mental health in the different ethnic groups. It should be noted that independent samples *t*-tests were conducted to test the difference between group means for student achievement, depression, and anxiety. Results of these three tests are presented later in the chapter.

Table 2

*Descriptive Statistics for Academic Achievement*

<b>Variable</b>	<b><i>n</i></b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b><i>SD</i></b>
<b>Academic Achievement (overall sample)</b>	910	300	0	300	201.02	35.49
<b>Academic Achievement (Males)</b>	428	300	0	300	201.65	36.79
<b>Academic Achievement (Females)</b>	482	268	0	268	200.46	34.31

Results from a 2-tailed *t*-test ( $t(908) = .51, p = .61$ ) revealed that mean academic achievement scores for males and females in the present study were similar.

Table 3

*Descriptive Statistics for CDI (Depression) Scores*

<b>Variable</b>	<b>N</b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>SD</b>
<b>Depression (Overall sample)</b>	937	45	28	73	41.83	7.56
<b>Depression (Males)</b>	441	45	28	73	41.71	7.72
<b>Depression (Females)</b>	496	41	30	71	41.93	7.42

Table 4

*Descriptive Statistics for RCMAS (Anxiety) Scores*

<b>Variable</b>	<b>n</b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>SD</b>
<b>Anxiety (Overall sample)</b>	979	28	28	56	38.51	5.90
<b>Anxiety (Males)</b>	461	28	28	56	38.21	5.97
<b>Anxiety (Females)</b>	518	27	28	55	38.77	5.84

Results from 2-tailed *t*-tests revealed no significant differences in depression ( $t(935) = -.45, p = .65$ ) and anxiety ( $t(977) = -1.47, p = .14$ ) mean scores for boys and girls in this. According to Riley (2003), the Beijing students in this sample had higher mean scores on both the CDI and RCMAS than their peers from the United States who were tested on the same instruments.

Table 5

*Descriptive Statistics for PARQ (Parental Warmth) Scores*

<b>Variable</b>	<b><i>n</i></b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b><i>SD</i></b>
<b>Parental Warmth (Overall sample)</b>	946	107	45	152	113.93	19.25
<b>Parental Warmth (Paternal)</b>	969	57	19	76	55.27	11.84
<b>Parental Warmth (Paternal with Boys)</b>	457	57	19	76	55.20	11.59
<b>Parental Warmth (Paternal with Girls)</b>	512	56	20	76	55.32	12.06
<b>Parental Warmth (Maternal)</b>	966	57	23	80	61.53	11.31
<b>Parental Warmth (Maternal with Boys)</b>	454	55	25	80	61.31	10.75
<b>Parental Warmth (Maternal with Girls)</b>	512	57	23	80	61.72	11.78

Table 6

*Descriptive Statistics for IPI (Parental Pressure) Scores*

<b>Variable</b>	<b><i>n</i></b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b><i>SD</i></b>
<b>Parental Pressure (Overall sample)</b>	954	69	18	87	46.66	13.32
<b>Parental Pressure (Paternal)</b>	964	36	9	45	22.83	6.99
<b>Parental Pressure (Paternal with Boys)</b>	460	36	9	45	23.09	7.14
<b>Parental Pressure (Paternal with Girls)</b>	504	33	9	42	22.59	6.81
<b>Parental Pressure (Maternal)</b>	973	40	10	50	26.44	8.48
<b>Parental Pressure (Maternal with Boys)</b>	459	40	10	50	26.91	8.33
<b>Parental Pressure (Maternal with Girls)</b>	514	40	10	50	26.01	8.59

Riley (2003) noted that the mean scores on the PARQ in her study indicated that, overall, Chinese parents in this sample were harsher and less physically demonstrative in their interactions with their children than Western parents were with their children.

In addition to descriptive statistics, bivariate correlations were conducted with academic achievement, depression, and anxiety for boys and girls. Results from these analyses are presented below.



Table 7

*Intercorrelations among Academic Achievement, Depression, and Anxiety for Beijing*

*Boys*

Variable	Depression	Anxiety
Academic Achievement	-.15**	-.11*
Depression		.71**

\*  $p < .05$   
 \*\*  $p < .01$

Table 8

*Intercorrelations among Academic Achievement, Depression, and Anxiety for Beijing*

*Girls*

Variables	Depression	Anxiety
Academic Achievement	-.14**	-.50**
Depression		.75**

\*\*  $p < .01$

Results indicate high correlation coefficients for both sexes between depression and anxiety, suggesting some overlap between these two aspects of adolescent psychological functioning (consistent with prior research). In addition, these findings indicate that for both sexes inverse associations exist between level of academic achievement and both anxiety and depression.

### *Relation between Parental Behaviors and Adolescent Functioning by Gender*

Prior to running multiple regression analyses, a decision was made by the current researcher to control for several variables that were included in Riley's (2003) original study but were not analyzed in the present research. Student's ambition was a variable defined by Riley (2003) as a student's intention or desire (motivation) to attend college after graduation. Fugilin (1997) found that personal academic emphasis on obtaining a good education in order to attend college was significantly and positively correlated with academic achievement in a sample of 10<sup>th</sup>, 8<sup>th</sup>, and 6<sup>th</sup> graders in California, and Dickson and MacLeod's (2004) study of 112 Australian adolescents revealed that students with lower levels of goal planning and academic motivation had higher levels of depression and anxiety. Given the results from these studies, it was believed that student's ambition could potentially moderate some of the associations between parental warmth and pressure and adolescent academic achievement and mental health in this sample, so this variable was controlled in the multiple regression analyses.

Similarly, a decision was made to control for parent's education, which was defined in Riley's (2003) study as the level of education that a parent had achieved (Please see Appendix H for a list of education levels). Researchers have found that higher educated parents tend to influence their children's abilities and desires to do well in school positively (Leung, Lau, & Lam, 1998), while Laible, Carlo, and Raffaelli (2000) found in their sample of 89 American adolescents that higher levels of parental education were correlated with lower levels of depression and anxiety. These results suggest that parent's education could also be a contributing factor to the level of academic

achievement, depression, and anxiety in adolescents, so it was deemed necessary to control for this variable.

It should be noted that family income and type of school may also have associations with adolescent functioning and parental behaviors. Family income was not included as a control variable because it was not a variable included in the dataset. The original researcher had a question in the demographic questionnaire that inquired about monthly family income, but these values were not coded and entered into the data file, so the present researcher did not have access to the information in order to use it as a control variable. Type of school was not controlled for because the focus of the study was on parents as a microsystem rather than an academic institution, and even though the characteristics of the school would have also been a variable of interest, this was beyond the scope of this study.

Multiple regression analyses were conducted to determine the amounts of variance that were explained in adolescents' academic achievement, depression, and anxiety by each parental variable (warmth and pressure) and the interaction between parental warmth and pressure, above and beyond any variance that was accounted for by the control variables of parental education and the adolescent's level of ambition. Before regression analyses were run, the predictor variables of warmth and pressure for each parent were centered in order to address the issue of multicollinearity among predictor variables. One situation in which multicollinearity can occur is when two variables are multiplied to form an interaction term, as was the case in this study with warmth and pressure. The interaction term is necessarily correlated with each of its components. Consequently, this multicollinearity makes it difficult to interpret findings when predictor

variables that have overlapping variance are entered together into a multiple regression analysis. By “competing” for variance in the dependent variable, one or more correlated predictor variables may fail to reach significance, even though each may separately account for variance in the dependent variable. This problem is of considerable concern in testing interaction effects with multiple regression analysis, because once main effect variables have entered the analysis, the interaction term that is comprised of those main effect terms may account for no significant additional variance in the dependent variable. Centering the predictor variables that are used to construct the interaction variable is one method that commonly has been used to partially address this multicollinearity concern, although it does not remove the problem completely. Another reason why centering can sometimes help with multicollinearity is that the beta coefficient for  $a$  estimates the relationship between  $a$  and  $y$  where  $b$  equals the mean of the variable, as opposed to equaling zero in a non-centered regression analysis (Aiken & West, 1991). Having individual regression scores equal to the mean allows for normalization of scores and more meaningful interpretations of regression coefficients (Aiken & West, 1991). Raudenbush and Bryk (2001) have noted that regression models derived from centered variables have been shown to be the same as those based on un-centered variables. Consequently, even though the traditional approach to centering was used in this study, the investigator used additional procedures described later to interpret the relation between an interaction term and a dependent variable.

The first step in centering involved computing group means for the four parenting variables (paternal warmth, paternal pressure, maternal warmth, and maternal pressure) for boys and for girls. The means for each of the variables were: paternal warmth ( $M =$

55.20 for boys and  $M = 55.32$  for girls), paternal pressure ( $M = 23.09$  and  $M = 22.58$  for girls), maternal warmth ( $M = 61.31$  for boys and  $M = 61.72$  for girls), and maternal pressure ( $M = 26.91$  for boys and  $M = 26.00$  for girls). The second step in centering was to create a new variable by calculating the difference between each subject's score on a parenting variable and the group mean for that variable. For example, in order to create a centered paternal warmth variable for the boys, the researcher first selected only the cases containing male students, and then computed the new variable "fawarmcenterboy" (father's warmth, centered, for boys) = the individual boy's score on the paternal warmth scale minus 55.20 (the group mean for paternal warmth for boys). The same procedure was implemented for paternal pressure, maternal warmth, and maternal pressure for boys and for girls.

Subsequently, interaction effect variables were created by multiplying the centered parenting variables. For example, the interaction of centered paternal warmth and centered paternal pressure was created by multiplying those two centered variables. The centered main effect variables (e.g., paternal warmth and paternal pressure) and resulting interaction variables (e.g., the product of centered paternal warmth and paternal pressure) were then used in the multiple regression analyses to predict adolescents' depression, anxiety, and achievement scores.

Initially when the multiple regressions were conducted, father's education and mother's education both were entered into the first step as control variables. The resulting models revealed high correlation coefficients ( $r$  values .69 or higher) and high collinearity (values close to or at 2.00) between these two predictors. Consequently a decision was made to drop mother's education as a control variable to be entered during

the first step of the stepwise analysis. The rationale for retaining father's rather than mother's education was based on the fathers' traditional role in China of being the primary influence on their children's education, although mothers have also assumed a role in this area. After mother's education was dropped as a control variable in step 1 of the stepwise multiple regression analysis, collinearity indices dropped to values at or very close to 1.00, allowing for a better fit of the regression models.

Thus, for each regression model, father's education and student's ambition were entered as the first block of predictors. Warmth and pressure from the parent who is the focus of the analysis were entered as the second block of predictors, and the interaction of the parent's warmth and pressure was entered as the third block. Each analysis involved predictors involving either maternal or paternal behavior and either boys' or girls' depression, anxiety, or school achievement. Results from these multiple regression analyses are presented below.

*The relation between paternal behaviors and male academic achievement.* A stepwise multiple regression analysis was computed, predicting male academic achievement as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 9, at the first step, the control variables accounted for a significant proportion of variance (4.3%) in boys' academic achievement. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 6.5% additional variance in academic achievement, whereas in step 3 the interaction of paternal warmth and pressure did not account for additional variance in achievement. The overall

model with all predictor variables entered was significant;  $R = .33$ ,  $R^2 = .11$ ,  $F(5, 348) = 8.45$ ,  $p < .001$ . In the final model, father's education ( $\beta = .13$ ,  $p = .012$ ) and father's pressure ( $\beta = -.27$ ,  $p < .001$ ) were significant predictors of male academic achievement, while student ambition ( $\beta = .052$ ,  $p = .31$ ) was not a significant predictor. There was a trend toward a zero-order correlation between paternal warmth and male academic achievement ( $r = .08$ ;  $p = .06$ ), but warmth was not a predictor in the multiple regression ( $\beta = -.01$ ,  $p = .91$ ). There was no evidence that the interaction between paternal warmth and pressure was related to male achievement, either in the zero-order correlation ( $r = .05$ ;  $p = .16$ ) or in the multiple regression analysis ( $\beta = -.02$ ,  $p = .73$ ). Table 9 provides an overview of the multiple regression analysis.

Table 9

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Male Academic Achievement.*

Model	$R$	$R^2$	$R^2$ Change	$F$ Change	$df1$	$df2$	Sig. of $F$ Change	$df$	$Model$ $F$	Sig.
1	.21	.043	.043	7.88	2	351	<.001	2	7.88	<.001
2	.33	.108	.065	12.71	2	349	<.001	4	10.56	<.001
3	.33	.108	.000	0.12	1	348	.735	5	8.45	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: academic achievement

Results summarized in Table 9 indicate that father's education and father's pressure were the main contributors to the variance in academic achievement of male students. Greater paternal education had a positive relationship with males' school

achievement, but greater paternal pressure was negatively related to the boys' school achievement in this sample of Mainland Chinese high school students. With regard to research question 1, the result from this analysis suggests that paternal pressure has a negative association with male academic achievement.

*The relation between paternal behaviors and female academic achievement.* A stepwise multiple regression analysis was computed, predicting female academic achievement as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 10, at the first step, the control variables accounted for a significant proportion of variance (2.3%) in girls' academic achievement. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 2.9% additional variance in academic achievement, whereas in step 3 the interaction of paternal warmth and pressure did not account for additional variance in achievement. The overall model with all predictor variables entered was significant;  $R = .24$ ,  $R^2 = .06$ ,  $F(5, 374) = 4.36$ ,  $p = .001$ . In the final model, father's education ( $\beta = .12$ ,  $p = .017$ ) and father's pressure ( $\beta = -.19$ ,  $p = .001$ ) were significant predictors of female academic achievement, but student ambition ( $\beta = .04$ ,  $p = .43$ ) was not a significant predictor. Paternal warmth was not related to female academic achievement in the Pearson correlation ( $r = .05$ ;  $p = .18$ ) and in the final regression model ( $\beta = -.03$ ,  $p = .60$ ). There was also no evidence that the interaction between paternal warmth and pressure was related to female achievement, either in the zero-order correlation ( $r = -.03$ ;  $p = .30$ ) or in the multiple regression



analysis ( $\beta = -.06, p = .28$ ). Table 10 provides an overview of the multiple regression analysis.

Table 10

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Female Academic Achievement.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.15	.023	.023	4.44	2	377	.012	2	4.44	.012
2	.23	.052	.029	5.72	2	375	.004	4	5.14	<.001
3	.24	.055	.003	1.23	1	374	.267	5	4.36	.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: academic achievement

Results summarized in Table 10 indicate that father's education and father's pressure were the main contributors to the variance in academic achievement of female students. Greater paternal education had a positive relationship with females' school achievement, but greater paternal pressure was negatively related to the girl's school achievement in this sample of Mainland Chinese high school students. With regard to research question 1, the result from this analysis suggests that paternal pressure has a negative association with female academic achievement.

*The relation between maternal behaviors and male academic achievement.* A stepwise multiple regression analysis was computed, predicting male academic achievement as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of maternal warmth and

pressure, and finally (3) the interaction between maternal warmth and pressure. As indicated in Table 11, at the first step, the control variables accounted for a significant proportion of variance (3.0%) in boys' academic achievement. The addition of maternal warmth and pressure in the second step accounted for a significant increase of 3.7% additional variance in academic achievement, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in achievement. The overall model with all predictor variables entered was significant;  $R = .26$ ,  $R^2 = .07$ ,  $F(5, 344) = 4.96$ ,  $p < .001$ . In the final model, father's education ( $\beta = .12$ ,  $p = .02$ ) and mother's pressure ( $\beta = -.167$ ,  $p = .01$ ) were significant predictors of male academic achievement, but student ambition ( $\beta = .05$ ,  $p = .99$ ) was not a significant predictor. Maternal warmth had a significant zero-order correlation with male academic achievement ( $r = .15$ ;  $p = .002$ ) but was not a predictor in the multiple regression analysis ( $\beta = .06$ ,  $p = .37$ ). There was no evidence that the interaction between maternal warmth and pressure was related to male achievement, either in the zero-order correlation ( $r = .034$ ;  $p = .27$ ) or in the multiple regression analysis ( $\beta = -.012$ ,  $p = .83$ ). Table 11 provides an overview of the multiple regression analysis.

Table 11

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Male Academic Achievement.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.17	.030	.030	5.43	2	347	.005	2	5.43	.005
2	.26	.067	.037	6.80	2	345	.001	4	6.21	<.001
3	.26	.067	.000	0.45	1	344	.828	5	4.96	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, mother's warmth, mother's pressure

c. Predictors: ambition, father's education, mother's warmth, mother's pressure, mother's warmth X mother's pressure

d. Dependent Variable: academic achievement

Results summarized in Table 11 indicate that father's education and mother's pressure were the main contributors to the variance in academic achievement of male students. Greater paternal education had a positive relationship with males' school achievement, but greater maternal pressure was negatively related to the boys' school achievement. With regard to research question 1, the result from this analysis suggests that maternal pressure has a negative association with male academic achievement.

*The relation between maternal behaviors and female academic achievement.* A stepwise multiple regression analysis was computed, predicting female academic achievement as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of maternal warmth and pressure, and finally (3) the interaction between maternal warmth and pressure. As indicated in Table 12, at the first step, the control variables accounted for a significant proportion of variance (1.8%) in girls' academic achievement. The addition of maternal

warmth and pressure in the second step accounted for a significant increase of 1.5% additional variance in academic achievement, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in achievement. The overall model with all predictor variables entered was significant;  $R = .19$ ,  $R^2 = .03$ ,  $F(5, 376) = 2.64$ ,  $p = .023$ . In the final model, father's education ( $\beta = .12$ ,  $p = .03$ ) and mother's pressure ( $\beta = -.14$ ,  $p = .02$ ) were significant predictors of female academic achievement, but student ambition ( $\beta = .03$ ,  $p = .52$ ) was not a significant predictor. Maternal warmth was not related to female academic achievement in the zero-order correlation ( $r = .05$ ;  $p = .17$ ) and in the final multiple regression model ( $\beta = -.03$ ,  $p = .65$ ). There was no evidence that the interaction between maternal warmth and pressure was related to male achievement, either in the zero-order correlation ( $r = .001$ ;  $p = .49$ ) or in the multiple regression analysis ( $\beta = -.010$ ,  $p = .85$ ). Table 12 provides an overview of the multiple regression analysis.

Table 12

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Female Academic Achievement.*

Model	$R$	$R^2$	$R^2$ Change	$F$ Change	$df1$	$df2$	Sig. of $F$ Change	$df$	$Model$ $F$	Sig.
1	.14	.018	.018	3.56	2	379	.029	2	3.56	.029
2	.19	.034	.015	2.99	2	377	.051	4	3.30	.011
3	.19	.034	.000	.04	1	376	.850	5	2.64	.023

- a. Predictors: ambition, father's education
- b. Predictors: ambition, father's education, mother's warmth, mother's pressure
- c. Predictors: ambition, father's education, mother's warmth, mother's pressure, mother's warmth X mother's pressure
- d. Dependent Variable: academic achievement

Results summarized in Table 12 indicate that father's education and mother's pressure were the main contributors to the variance in academic achievement of female students. Greater paternal education had a positive relationship with females' school achievement, but greater maternal pressure was negatively related to the girls' school achievement. With regard to research question 1, the result from this analysis suggests that maternal pressure has a negative association with female academic achievement.

*Summary of results for relation between parental behaviors and adolescent academic achievement.* Results from the multiple regression analyses revealed that father's education and pressure to achieve from both parents were associated with variation in male and female adolescents' academic achievement levels. Greater paternal education was positively related to male and female academic achievement, whereas greater parental pressure was negatively related to male and female academic achievement. Although paternal and maternal warmth were not significantly correlated with academic achievement among girls, among boys there was a significant Pearson correlation between maternal warmth and academic achievement and a trend toward a significant Pearson correlation between paternal warmth and academic achievement.

The fact that parental warmth was positively correlated with achievement in boys suggests that this behavior is associated with school success of male students in Beijing. In the final regression models, however, both paternal and maternal warmth were not significant predictors of male academic achievement. Multicollinearity may have resulted in the non-significant finding in that adding parental pressure to the regression models may have negated some of the variance contributed by parental warmth. This argument is based on results showing warmth and pressure to be significantly correlated with each

other for both fathers ( $r = -.31, p < .001$  for boys;  $r = -.33, p < .001$  for girls) and mothers ( $r = -.48, p < .001$  for boys;  $r = -.49, p < .001$  for girls). There were no significant interaction effects of parental warmth and pressure on adolescent academic achievement, either in the zero-order correlations or in the final regression models, for both fathers and mothers and male and female students.

*The relation between paternal behaviors and male depression.* A stepwise multiple regression analysis was computed, predicting male depression as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 13, at the first step, the control variables accounted for a significant amount (1.8%) of variance in boys' depression. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 14.2% additional variance in depression, whereas in step 3 the interaction of paternal warmth and pressure did not account for additional variance in depression. The overall model with all predictor variables entered was significant;  $R = .40, R^2 = .17, F(5, 355) = 14.00, p < .001$ . In the final model, father's warmth ( $\beta = -.20, p < .001$ ) and father's pressure ( $\beta = .25, p < .001$ ) were significant predictors of male depression levels, but student ambition ( $\beta = -.04, p = .39$ ) was not a significant predictor. Father's education was significantly associated with male depression in the zero-order correlation ( $r = -.12; p = .02$ ) but was not a predictor of male depression in the final regression model ( $\beta = -.05, p = .34$ ). There was no evidence that the interaction between paternal warmth and pressure was related to male depression in the multiple regression

analysis ( $\beta = -.07, p = .15$ ). Table 13 provides an overview of the multiple regression analysis.

Table 13

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Male Depression.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.13	.018	.018	3.28	2	358	.039	2	3.28	.039
2	.40	.160	.142	30.06	2	356	<.001	4	16.94	<.001
3	.40	.165	.005	2.05	1	355	.153	5	14.00	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: depression

Results summarized in Table 13 indicate that father's warmth and father's pressure were the main contributors to the variance in depression level of male students. Greater paternal warmth had a negative relationship with males' depression, but greater paternal pressure was positively related to the boys' depression. With regard to whether paternal warmth and pressure have an association with male depression levels, the result from this analysis suggests that paternal warmth has a negative association with male depression and paternal pressure has a positive association with male depression.

Although the interaction between paternal warmth and paternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the paternal warmth by paternal pressure interaction term and boys' depression was significant ( $r = -.17; p = .001$ ). This finding suggests that individually the interaction

variable accounts for some of the variance in the criterion variable of depression.

However, when the interaction term is entered together with its two component predictor variables in the regression model, they compete for variance, and the association that the interaction variable had with the dependent variable is essentially nullified. This issue is presumably due to the problem of multicollinearity discussed earlier, and to dismiss the interaction effect because it was not a significant predictor of male depression in the final regression model might result in ignoring important information that could potentially explain some of the factors influencing a dependent variable, in this case Chinese adolescent males' depression levels. Consequently, this investigator decided to explore an interaction effect that had a significant Pearson correlation with a dependent variable even when it was not a significant predictor in the multiple regression model.

Therefore, a 2 (higher versus lower warmth) by 2 (higher versus lower pressure) table of cell means was constructed for males' depression as a function of paternal warmth and paternal pressure. For this purpose, both paternal warmth and paternal pressure to achieve were dichotomized through median splits (as close to the 50<sup>th</sup> percentile as possible). Warmth scores of 116 or below were identified as lower warmth and 117 or above as higher warmth. Pressure scores of 46 or below were identified as lower pressure and 47 or above as higher pressure. These male depression cell means are presented in Table 14.

It should be noted that this procedure of creating a 2 x 2 table of cell means to explore the interaction effect of parental warmth and pressure on adolescent depression, anxiety, and academic achievement was conducted whenever the regression analysis revealed a significant Pearson correlation between this predictor variable and the criterion



variable, whether or not there was a significant interaction effect found in the final regression model.

Table 14

*Cell Means for Male Depression as a Function of Paternal Warmth and Pressure*

	<b>Higher Paternal Warmth</b>	<b>Lower Paternal Warmth</b>
<b>Higher Paternal Pressure</b>	42.27	45.29
<b>Lower Paternal Pressure</b>	38.86	39.58

Results from Table 14 reveal that the mean depression score for males was highest when there was lower paternal warmth and higher paternal pressure, and lowest when there was higher paternal warmth and lower paternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean depression scores between lower and higher pressure groups was greater (5.71) when warmth was lower than when it was higher (3.41). This suggests that paternal warmth has a moderating effect on the relation between degree of paternal pressure and boys' depression, buffering or lessening the association between paternal pressure and the males' depression levels. In other words, higher levels of paternal warmth appear to reduce the negative relation between paternal pressure to achieve and Beijing male adolescents' depression. With regards to whether paternal warmth and pressure interact to influence male depression levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and male depression.

*The relation between paternal behaviors and female depression.* A stepwise multiple regression analysis was computed, predicting female depression as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 15, at the first step, the control variables did not account for a significant amount (0.9%,  $p = .16$ ) of variance in girls' depression. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 9.3% additional variance in depression, whereas in step 3 there was a trend toward the interaction of paternal warmth and pressure accounting for significant additional variance in depression (0.8%,  $p = .06$ ). The overall model with all predictor variables entered was significant;  $R = .33$ ,  $R^2 = .11$ ,  $F(5, 382) = 9.49$ ,  $p < .001$ . In the final model, father's warmth ( $\beta = -.23$ ,  $p < .001$ ) was a significant predictor of female depression levels, but student ambition ( $\beta = .01$ ,  $p = .90$ ) was not. Whereas father's pressure had a significant zero-order correlation with female depression ( $r = .21$ ;  $p < .001$ ), in the final regression model there was a trend toward significance in the predictive ability of father's pressure on female depression ( $\beta = .10$ ,  $p = .06$ ). Father's education was significantly associated with female depression ( $r = -.10$ ;  $p = .03$ ) in the zero-order correlation but was not a predictor of female depression in the final regression model ( $\beta = -.04$ ,  $p = .46$ ). As noted above, there was a trend toward a significant association between the interaction of paternal warmth and pressure and female depression in the multiple regression analysis ( $\beta = -.10$ ,  $p = .06$ ). Table 15 provides an overview of the multiple regression analysis.

Table 15

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Female Depression.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.10	.009	.009	1.82	2	385	.163	2	1.82	.163
2	.32	.102	.093	19.77	2	383	<.001	4	10.89	<.001
3	.32	.110	.008	3.59	1	382	.059	5	9.49	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: depression

Results summarized in Table 15 indicate that father's warmth was the main contributor to the variance in depression level of female students. Greater paternal warmth had a negative relationship with females' depression. With regard to whether paternal warmth and pressure have an association with female depression levels, the result from this analysis suggests that paternal warmth has a negative association with female depression.

Although the interaction between paternal warmth and paternal pressure was found to be only a trend ( $p = .06$ ) in the multiple regression analysis, the zero-order correlation between the paternal warmth by paternal pressure interaction term and girls' depression was significant ( $r = -.17$ ;  $p = .001$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of depression, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table of cell means was created to explore this interaction effect on female depression. These female depression cell means are presented in Table 16.

Table 16

*Cell Means for Female Depression as a Function of Paternal Pressure and Warmth*

	<b>Higher Paternal Warmth</b>	<b>Lower Paternal Warmth</b>
<b>Higher Paternal Pressure</b>	40.20	45.30
<b>Lower Paternal Pressure</b>	39.66	42.74

Results from Table 16 reveal that the mean depression score for females was highest when there was lower paternal warmth and higher paternal pressure, and lowest when there was higher paternal warmth and lower paternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean depression scores between lower and higher pressure groups was greater (2.56) when warmth was lower than when it was higher (.54). This suggests that paternal warmth has a moderating effect on the relation between degree of paternal pressure and girls' depression, buffering or lessening the association between paternal pressure and the females' depression levels. In other words, higher levels of paternal warmth appear to reduce the negative relation between paternal pressure to achieve and Beijing female adolescents' depression. With regards to whether paternal warmth and pressure interact to influence female depression levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and female depression.

*The relation between maternal behaviors and male depression.* A stepwise multiple regression analysis was computed, predicting male depression as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of maternal warmth and pressure, and finally (3) the

interaction between maternal warmth and pressure. As indicated in Table 17, at the first step, there was a trend toward significance (1.5%,  $p = .06$ ) for the control variables accounting for the variance in boys' depression. The addition of maternal warmth and pressure in the second step accounted for a significant increase of 18.9% additional variance in depression, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in depression. The overall model with all predictor variables entered was significant;  $R = .46$ ,  $R^2 = .21$ ,  $F(5, 351) = 18.59$ ,  $p < .001$ . In the final model, mother's warmth ( $\beta = -.23$ ,  $p < .001$ ) and mother's pressure ( $\beta = .25$ ,  $p < .001$ ) were significant predictors of male depression levels, but student ambition ( $\beta = -.02$ ,  $p = .69$ ) was not a significant predictor. Father's education was significantly associated with male depression ( $r = -.10$ ,  $p = .04$ ) in the zero-order correlation but was not a predictor of male depression in the final regression model ( $\beta = -.03$ ,  $p = .57$ ). There was no evidence that the interaction between maternal warmth and pressure was related to male depression in the multiple regression analysis ( $\beta = -.08$ ,  $p = .13$ ). Table 17 provides an overview of the multiple regression analysis.

Table 17

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Male Depression.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.12	.015	.015	2.77	2	354	.064	2	2.77	.064
2	.45	.204	.189	41.73	2	352	<.001	4	22.57	<.001
3	.46	.209	.005	2.32	1	351	.129	5	18.59	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, mother's warmth, mother's pressure

c. Predictors: ambition, father's education, mother's warmth, mother's pressure mother's warmth X mother's pressure

d. Dependent Variable: depression

Results summarized in Table 17 indicate that mother's warmth and mother's pressure were the main contributors to the variance in depression level of male students. Greater maternal warmth had a negative relationship with males' depression, but greater maternal pressure was positively related to the boys' depression. With regard to whether maternal warmth and pressure have an association with male depression levels, the result from this analysis suggests that maternal warmth has a negative association with male depression and maternal pressure has a positive association with male depression.

Although the interaction between maternal warmth and maternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the maternal warmth by maternal pressure interaction term and boys' depression was significant ( $r = -.20$ ;  $p < .001$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of depression, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2

table of cell means was created to explore this interaction effect on male depression. These male depression cell means are presented in Table 18.

Table 18

*Cell Means for Male Depression as a Function of Maternal Pressure and Warmth*

	<b>Higher Maternal Warmth</b>	<b>Lower Maternal Warmth</b>
<b>Higher Maternal Pressure</b>	41.00	45.60
<b>Lower Maternal Pressure</b>	38.10	41.16

Results from Table 18 reveal that the mean depression score for males was highest when there was lower maternal warmth and higher maternal pressure, and lowest when there was higher maternal warmth and lower maternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean depression scores between lower and higher pressure groups was greater (4.44) when warmth was lower than when it was higher (2.90). This suggests that maternal warmth has a moderating effect on the relation between degree of maternal pressure and boys' depression, buffering or lessening the association between maternal pressure and the males' depression levels. In other words, higher levels of maternal warmth appear to reduce the negative relation between maternal pressure to achieve and Beijing male adolescents' depression. With regards to whether maternal warmth and pressure interact to influence male depression levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and male depression.

*The relation between maternal behaviors and female depression.* A stepwise multiple regression analysis was computed, predicting female depression as a function of

(1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of maternal warmth and pressure, and finally (3) the interaction between maternal warmth and pressure. As indicated in Table 19, at the first step, there was a trend toward significance (1.5%,  $p = .06$ ) for the control variables accounting for the variance in girls' depression. The addition of maternal warmth and pressure in the second step accounted for a significant increase of 9.3% additional variance in depression, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in depression. The overall model with all predictor variables entered was significant;  $R = .34$ ,  $R^2 = .11$ ,  $F(5, 383) = 9.70$ ,  $p < .001$ . In the final model, mother's warmth ( $\beta = -.22$ ,  $p < .001$ ) was a significant predictor of female depression level, but student ambition ( $\beta = -.01$ ,  $p = .98$ ) was not a significant predictor. Mother's pressure had a significant zero-order correlation with female depression ( $r = .23$ ;  $p < .001$ ) but was not a predictor of female depression in the final regression model ( $\beta = .09$ ,  $p = .13$ ). Father's education was significantly associated with female depression ( $r = -.12$ ;  $p = .009$ ) in the zero-order correlation but was not a predictor of female depression in the final regression model ( $\beta = -.09$ ,  $p = .08$ ). There was no evidence that the interaction between maternal warmth and pressure was related to female depression in the multiple regression analysis ( $\beta = -.08$ ,  $p = .16$ ). Table 19 provides an overview of the multiple regression analysis.



Table 19

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Female Depression.*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Change	<i>F</i> Change	<i>df</i> 1	<i>df</i> 2	Sig. of <i>F</i> Change	<i>df</i>	Model <i>F</i>	Sig.
1	.12	.015	.015	2.88	2	386	.057	2	2.88	.057
2	.33	.108	.093	20.04	2	384	<.001	4	11.60	<.001
3	.34	.112	.005	1.96	1	383	.163	5	9.70	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, mother's warmth, mother's pressure

c. Predictors: ambition, father's education, mother's warmth, mother's pressure, mother's warmth X mother's pressure

d. Dependent Variable: depression

Results summarized in Table 19 indicate that mother's warmth was the main contributor to the variance in depression level of female students. Greater maternal warmth was negatively related to the girls' depression. With regard to whether maternal warmth and pressure have an association with female depression levels, the result from this analysis suggests that maternal warmth has a negative association with female depression.

Although the interaction between maternal warmth and maternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the maternal warmth by maternal pressure interaction term and girls' depression was significant ( $r = -.18; p < .001$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of depression, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table of cell means was created to explore this interaction effect on female depression. These female depression cell means are presented in Table 20.

Table 20

*Cell Means for Female Depression as a Function of Maternal Pressure and Warmth*

	<b>Higher Maternal Warmth</b>	<b>Lower Maternal Warmth</b>
<b>Higher Maternal Pressure</b>	41.40	44.15
<b>Lower Maternal Pressure</b>	40.59	41.64

Results from Table 20 reveal that the mean depression score for females was highest when there was lower maternal warmth and higher maternal pressure, and lowest when there was higher maternal warmth and lower maternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean depression scores between lower and higher pressure groups was greater (2.51) when warmth was lower than when it was higher (.81). This suggests that maternal warmth has a moderating effect on the relation between degree of maternal pressure and girls' depression, buffering or lessening the association between maternal pressure and the females' depression levels. In other words, higher levels of maternal warmth appear to reduce the negative relation between maternal pressure to achieve and Beijing female adolescents' depression. With regards to whether maternal warmth and pressure interact to influence female depression levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and female depression.

*The relation between paternal behaviors and male anxiety.* A stepwise multiple regression analysis was computed, predicting male anxiety as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental

characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 21, at the first step, the control variables accounted for a significant amount (2.3%) of variance in boys' anxiety. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 13.9% additional variance in anxiety, whereas in step 3 the interaction of paternal warmth and pressure did not account for additional variance in anxiety. The overall model with all predictor variables entered was significant;  $R = .40$ ,  $R^2 = .15$ ,  $F(5, 370) = 14.45$ ,  $p < .001$ . In the final model, father's warmth ( $\beta = -.16$ ,  $p = .001$ ) and father's pressure ( $\beta = .29$ ,  $p < .001$ ) were significant predictors of male anxiety levels, but student ambition ( $\beta = .04$ ,  $p = .39$ ) was not a significant predictor. Father's education was significantly associated with male anxiety ( $r = -.15$ ;  $p = .002$ ) in the zero-order correlation but was not a predictor of male anxiety in the final regression model ( $\beta = -.08$ ,  $p = .16$ ). There was no evidence that the interaction between paternal warmth and pressure was related to male anxiety in the multiple regression analysis ( $\beta = -.04$ ,  $p = .42$ ). Table 21 provides an overview of the multiple regression analysis.

Table 21

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Male Anxiety.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.15	.023	.023	4.33	2	373	.014	2	4.33	.014
2	.40	.162	.139	30.80	2	371	<.001	4	17.91	<.001
3	.40	.163	.001	.645	1	370	.422	5	14.45	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: anxiety

Results summarized in Table 21 indicate that father's warmth and father's pressure were the main contributors to the variance in anxiety level of male students. Greater paternal warmth had a negative relationship with males' anxiety, but greater paternal pressure was positively related to the boys' anxiety. With regard to whether paternal warmth and pressure have an association with male anxiety levels, the result from this analysis suggests that paternal warmth has a negative association with male anxiety and paternal pressure has a positive association with male anxiety.

Although the interaction between paternal warmth and paternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the paternal warmth by paternal pressure interaction term and boys' anxiety was significant ( $r = -.14$ ;  $p = .004$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of anxiety, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table

of cell means was created to explore this interaction effect on male anxiety. These male anxiety cell means are presented in Table 22.

Table 22

*Cell Means for Male Anxiety as a Function of Paternal Pressure and Warmth*

	<b>Higher Paternal Warmth</b>	<b>Lower Paternal Warmth</b>
<b>Higher Paternal Pressure</b>	38.92	40.71
<b>Lower Paternal Pressure</b>	35.79	36.40

Results from Table 22 reveal that the mean anxiety score for males was highest when there was lower paternal warmth and higher paternal pressure, and lowest when there was higher paternal warmth and lower paternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean anxiety scores between lower and higher pressure groups was greater (4.31) when warmth was lower than when it was higher (3.13). This suggests that paternal warmth has a moderating effect on the relation between degree of paternal pressure and boys' anxiety, buffering or lessening the association between paternal pressure and the males' anxiety levels. In other words, higher levels of paternal warmth appear to reduce the negative relation between paternal pressure to achieve and Beijing male adolescents' anxiety. With regards to whether paternal warmth and pressure interact to influence male anxiety levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and male anxiety.

*The relation between paternal behaviors and female anxiety.* A stepwise multiple regression analysis was computed, predicting female anxiety as a function of (1) the

control variables of child ambition and father's education level, followed by (2) the parental characteristics of paternal warmth and pressure, and finally (3) the interaction between paternal warmth and pressure. As indicated in Table 23, at the first step, the control variables accounted for a significant amount (2.8%) of variance in girls' anxiety. The addition of paternal warmth and pressure in the second step accounted for a significant increase of 8.8% additional variance in anxiety, whereas in step 3 the interaction of paternal warmth and pressure did not account for additional variance in anxiety. The overall model with all predictor variables entered was significant;  $R = .35$ ,  $R^2 = .12$ ,  $F(5, 402) = 10.91$ ,  $p < .001$ . In the final model, father's warmth ( $\beta = -.15$ ,  $p = .004$ ) and father's pressure ( $\beta = .20$ ,  $p < .001$ ) were significant predictors of female anxiety levels, but student ambition ( $\beta = .08$ ,  $p = .10$ ) was not a significant predictor. Father's education was significantly associated with female anxiety ( $r = -.15$ ;  $p = .002$ ) in the zero-order correlation but was not a predictor of female anxiety in the final regression model ( $\beta = -.09$ ,  $p = .07$ ). There was no evidence that the interaction between paternal warmth and pressure was related to female anxiety in the multiple regression analysis ( $\beta = -.07$ ,  $p = .16$ ). Table 23 provides an overview of the multiple regression analysis.

Table 23

*Model Statistics of Multiple Regression Analysis for Control Variables and Paternal Behaviors Predicting Female Anxiety.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.17	.028	.028	5.75	2	405	.003	2	5.75	.003
2	.34	.115	.088	19.93	2	403	<.001	4	13.11	<.001
3	.35	.119	.004	1.98	1	402	.160	5	10.91	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, father's warmth, father's pressure

c. Predictors: ambition, father's education, father's warmth, father's pressure, father's warmth X father's pressure

d. Dependent Variable: anxiety

Results summarized in Table 23 indicate that father's warmth and father's pressure were the main contributors to the variance in anxiety level of female students. Greater paternal warmth had a negative relationship with females' anxiety, but greater paternal pressure was positively related to the girls' anxiety. With regard to whether paternal warmth and pressure have an association with female anxiety levels, the result from this analysis suggests that paternal warmth has a negative association with female anxiety and paternal pressure has a positive association with female anxiety.

Although the interaction between paternal warmth and paternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the paternal warmth by paternal pressure interaction term and girls' anxiety was significant ( $r = -.14$ ;  $p = .003$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of anxiety, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table

of cell means was created to explore this interaction effect on female anxiety. These female anxiety cell means are presented in Table 24.

Table 24

*Cell Means for Female Anxiety as a Function of Paternal Pressure and Warmth*

	<b>Higher Paternal Warmth</b>	<b>Lower Paternal Warmth</b>
<b>Higher Paternal Pressure</b>	38.20	41.36
<b>Lower Paternal Pressure</b>	37.24	38.62

Results from Table 25 reveal that the mean anxiety score for females was highest when there was lower paternal warmth and higher paternal pressure, and lowest when there was higher paternal warmth and lower paternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean anxiety scores between lower and higher pressure groups was greater (2.74) when warmth was lower than when it was higher (.96). This suggests that paternal warmth has a moderating effect on the relation between degree of paternal pressure and girls' anxiety, buffering or lessening the association between paternal pressure and the females' anxiety levels. In other words, higher levels of paternal warmth appear to reduce the negative relation between paternal pressure to achieve and Beijing female adolescents' anxiety. With regards to whether paternal warmth and pressure interact to influence female anxiety levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and female anxiety.

*The relation between maternal behaviors and male anxiety.* A stepwise multiple regression analysis was computed, predicting male anxiety as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental



characteristics of maternal warmth and pressure, and finally (3) the interaction between maternal warmth and pressure. As indicated in Table 25, at the first step, the control variables accounted for a significant amount (1.6%) of variance in boys' anxiety. The addition of maternal warmth and pressure in the second step accounted for a significant increase of 15.2 % additional variance in anxiety, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in anxiety. The overall model with all predictor variables entered was significant;  $R = .41$ ,  $R^2 = .17$ ,  $F(5, 365) = 15.07$ ,  $p < .001$ . In the final model, mother's pressure ( $\beta = .31$ ,  $p < .001$ ) was a significant predictor of male anxiety levels, but student ambition ( $\beta = .05$ ,  $p = .31$ ) was not a significant predictor. Although mother's warmth had a significant zero-order correlation with male anxiety ( $r = -.29$ ;  $p < .001$ ), in the final regression model there was only a trend toward significance in the predictive ability of mother's warmth on male anxiety ( $\beta = -.11$ ,  $p = .06$ ). Father's education was significantly associated with male anxiety ( $r = -.13$ ;  $p = .007$ ) in the zero-order correlation but was not a predictor of male anxiety in the final regression model ( $\beta = -.07$ ,  $p = .17$ ). There was no evidence that the interaction between maternal warmth and pressure was related to male anxiety in the multiple regression analysis ( $\beta = -.06$ ,  $p = .24$ ). Table 25 provides an overview of the multiple regression analysis.

Table 25

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Male Anxiety.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.13	.016	.016	3.04	2	368	.049	2	3.04	.049
2	.41	.168	.152	33.38	2	366	<.001	4	18.47	<.001
3	.41	.171	.003	1.37	1	365	.243	5	15.07	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, mother's warmth, mother's pressure

c. Predictors: ambition, father's education, mother's warmth, mother's pressure, mother's warmth X mother's pressure

d. Dependent Variable: anxiety

Results summarized in Table 25 indicate that mother's pressure was the main contributor to the variance in anxiety level of male students. Greater maternal pressure was positively related to the boys' anxiety. With regard to whether maternal warmth and pressure have an association with male anxiety levels, the result from this analysis suggests that maternal pressure has a positive association with male anxiety.

Although the interaction between maternal warmth and maternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the maternal warmth by maternal pressure interaction term and boys' anxiety was significant ( $r = -.16; p = .001$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of anxiety, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table of cell means was created to explore the association between the interaction effect and male anxiety. These male anxiety cell means are presented in Table 26.

Table 26

*Cell Means for Male Anxiety as a Function of Maternal Pressure and Warmth*

	<b>Higher Maternal Warmth</b>	<b>Lower Maternal Warmth</b>
<b>Higher Maternal Pressure</b>	39.61	40.14
<b>Lower Maternal Pressure</b>	35.41	37.37

Results from Table 26 reveal that the mean anxiety score for males was highest when there was lower maternal warmth and higher maternal pressure, and lowest when there was higher maternal warmth and lower maternal pressure, indicating an additive effect of the two parenting predictor variables. Unlike the previous results, the cell means in this 2 x 2 table indicate that the *difference* in mean anxiety scores between lower and higher pressure groups was lower (2.77) when warmth was lower than when it was higher (4.20). This suggests that maternal warmth moderates the association between degree of maternal pressure and boys' anxiety, but that greater warmth from the mother may *amplify* the negative relation between mother's pressure to achieve and males' anxiety, in contrast to its buffering effect for males' depression. With regards to whether maternal warmth and pressure interact to influence male anxiety levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and male anxiety.

*The relation between maternal behaviors and female anxiety.* A stepwise multiple regression analysis was computed, predicting female anxiety as a function of (1) the control variables of child ambition and father's education level, followed by (2) the parental characteristics of maternal warmth and pressure, and finally (3) the interaction between maternal warmth and pressure. As indicated in Table 27, at the first step, the

control variables accounted for a significant amount (3.6%) of variance in girls' anxiety. The addition of maternal warmth and pressure in the second step accounted for a significant increase of 11.7% additional variance in anxiety, whereas in step 3 the interaction of maternal warmth and pressure did not account for additional variance in anxiety. The overall model with all predictor variables entered was significant;  $R = .40$ ,  $R^2 = .16$ ,  $F(5, 404) = 14.96$ ,  $p < .001$ . In the final model, father's education ( $\beta = -.13$ ,  $p = .005$ ), mother's warmth ( $\beta = -.18$ ,  $p = .002$ ), and mother's pressure ( $\beta = .20$ ,  $p < .001$ ) were significant predictors of female anxiety levels, while there was a trend toward significance for student ambition ( $\beta = .09$ ,  $p = .06$ ). There was no evidence that the interaction between maternal warmth and pressure was related to female anxiety in the multiple regression analysis ( $\beta = -.06$ ,  $p = .26$ ). Table 27 provides an overview of the multiple regression analysis.

Table 27

*Model Statistics of Multiple Regression Analysis for Control Variables and Maternal Behaviors Predicting Female Anxiety.*

Model	R	R <sup>2</sup>	R <sup>2</sup> Change	F Change	df1	df2	Sig. of F Change	df	Model F	Sig.
1	.19	.036	.036	7.64	2	407	.001	2	7.64	.001
2	.39	.154	.117	28.09	2	405	<.001	4	18.37	<.001
3	.40	.156	.003	1.26	1	404	.263	5	14.96	<.001

a. Predictors: ambition, father's education

b. Predictors: ambition, father's education, mother's warmth, mother's pressure

c. Predictors: ambition, father's education, mother's warmth, mother's pressure, mother's warmth X mother's pressure

d. Dependent Variable: anxiety

Results summarized in Table 27 indicate that father's education, mother's warmth and mother's pressure were the main contributors to the variance in anxiety level of female students. A greater level of father's education was negatively associated with females' anxiety levels. Greater maternal warmth had a negative relationship with females' anxiety, but greater maternal pressure was positively related to the girls' anxiety. With regard to whether maternal warmth and pressure have an association with female anxiety levels, the result from this analysis suggests that maternal warmth has a negative association with female anxiety and maternal pressure has a positive association with female anxiety.

Although the interaction between maternal warmth and maternal pressure was found to be non-significant in the multiple regression analysis, the zero-order correlation between the maternal warmth by maternal pressure interaction term and girls' anxiety was significant ( $r = -.17; p < .001$ ). This finding suggests that individually the interaction variable accounts for some of the variance in the criterion variable of anxiety, even when it was not a significant predictor in the multiple regression model. Therefore a 2 x 2 table of cell means was created to explore this interaction effect on female anxiety. These female anxiety cell means are presented in Table 28.

Table 28

*Cell Means for Female Anxiety as a Function of Maternal Pressure and Warmth*

	<b>Higher Maternal Warmth</b>	<b>Lower Maternal Warmth</b>
<b>Higher Maternal Pressure</b>	38.82	41.14
<b>Lower Maternal Pressure</b>	37.19	37.83

Results from Table 28 reveal that the mean anxiety score for females was highest when there was lower maternal warmth and higher maternal pressure, and lowest when there was higher maternal warmth and lower maternal pressure, indicating an additive effect of the two parenting predictor variables. However, the cell means also indicate that the *difference* in mean anxiety scores between lower and higher pressure groups was greater (3.31) when warmth was lower than when it was higher (1.63). This suggests that maternal warmth has a moderating effect on the relation between degree of maternal pressure and girls' anxiety, buffering or lessening the association between maternal pressure and the females' anxiety levels. In other words, higher levels of maternal warmth appear to reduce the negative relation between maternal pressure to achieve and Beijing female adolescents' anxiety. With regards to whether maternal warmth and pressure interact to influence female anxiety levels, the result from this analysis suggest that an interaction effect exists between the two parenting variables and female anxiety.

*Summary of results for relation between parental behaviors and adolescent depression and anxiety.* A summary of the results from the multiple analyses that examined the association between parental behaviors and adolescent depression by gender of the parent and child will be presented first, followed by an overview of the

results from the analyses conducted on the association between parental behaviors and adolescent anxiety by gender of the parent and child. It should be noted that all tests of an interaction between parental warmth and parental pressure were conducted solely for one parent at a time (e.g., father's warmth by father's pressure; mother's warmth by mother's pressure). Tests of the interaction between one parent's warmth and the other's pressure were not conducted. Such inter-parental effects are another important phenomenon to consider, but they were beyond the scope of the present study.

Research questions 1 focused on exploring any associations that may have existed between parental warmth and pressure and adolescent depression and anxiety by gender of both the parents and the high school students. Both paternal and maternal warmth and pressure were the main contributors to the variance in depression levels of male students. Warmth from either parent was negatively associated with boys' depression, whereas pressure to achieve from either parent was positively associated with boys' depression. For the female adolescents, only paternal and maternal warmth contributed significantly to the variance in depression scores. Greater warmth from either parent was negatively associated with girls' depression levels. There was a trend toward a significant association between paternal pressure and girls' depression (alpha level between .06 and .10), but a non-significant relationship was revealed between maternal pressure and adolescent female depression levels.

Research question 2 sought to examine possible interaction effects of warmth and pressure within each parent and boy and girl depression and anxiety. In terms of the association between the interaction of warmth and pressure on adolescent depression, there was evidence that both paternal and maternal warmth moderated the effect of

parental pressure to achieve on male and female students' depression levels. Mean depression scores for either adolescent gender were highest when there was lower paternal or maternal warmth and higher paternal and maternal pressure, and lowest when there was higher maternal or paternal warmth and lower maternal or paternal pressure. The difference in cell means for depression scores between lower and higher pressure groups was greater when warmth was lower than when it was higher, and this pattern was consistent for all of the different parent-child relationships (fathers and sons, fathers and daughters, mothers and sons, mothers and daughters).

The data from the 2 x 2 cell means for parental behaviors and depression suggest that fathers' and mothers' warmth buffer or lessen some of the negative impact that paternal and maternal pressure to achieve has on depression, and that male and female adolescents appear to benefit from either of their parent's affection.

With regard to adolescent anxiety, there were variations in the association between parental behaviors and this psychological outcome. Paternal warmth and paternal pressure were the main contributors to the variance in anxiety level of male and female students. Greater paternal warmth had a negative association with male and female anxiety levels, but greater paternal pressure was positively associated to boys' and girls' anxiety in this sample of Mainland Chinese high school students.

For maternal behaviors, mother's pressure was the main contributor to the variance in anxiety level of male students, although there was a trend toward significance for maternal warmth and boys' anxiety scores ( $p = .06$ ). Higher levels of maternal pressure to achieve were associated with higher levels of boys' anxiety in this sample of urban Mainland Chinese high school students. Father's education, mother's warmth and



mother's pressure contributed significantly to the variance in anxiety level of female students. Greater father's education and maternal warmth were negatively associated with girls' anxiety, whereas greater maternal pressure to achieve was positively associated with female student's anxiety scores.

In terms of the interaction effect between the two predictors and adolescent anxiety, there was evidence that paternal warmth moderated the effect of paternal pressure to achieve on male and female students' anxiety levels. Mean anxiety scores for adolescents of either gender were highest when there was lower paternal warmth and higher paternal pressure, and lowest when there was higher paternal warmth and lower paternal pressure. The difference in cell means for anxiety scores between lower and higher pressure groups was greater when paternal warmth was lower than when it was higher for both boys and girls.

For maternal behaviors, maternal warmth had a moderating effect on the relation between degree of maternal pressure and girls' anxiety. The mean anxiety score for females was highest when maternal warmth was lower and maternal pressure was higher, and lowest when maternal warmth was higher and maternal pressure was lower. For female students, the difference in cell means for anxiety scores between lower and higher pressure groups was greater when maternal warmth was lower than when it was higher.

In contrast, with regard to the male students, maternal warmth moderated the degree of association between maternal pressure and boys' anxiety such that the difference in cell means for anxiety scores between lower and higher pressure groups was actually lower when maternal warmth was lower than when maternal warmth was higher.

This was the only variation found with regard to the association between the interaction of warmth and pressure and adolescent depression and anxiety.

Data from the interaction effect analyses for parental behaviors and anxiety suggest that fathers' warmth can buffer or lessen some of the negative impact that paternal pressure to achieve has on male and female anxiety. Mothers' warmth also moderated the relationship between maternal pressure to achieve and female anxiety levels in the same manner as father's warmth on female anxiety. However, the findings suggest that greater maternal warmth amplifies the relation between maternal pressure and boys' anxiety.

#### *Gender Differences in the Associations Between Parental Behaviors and Adolescent Functioning*

Research question 3 asked if significant gender differences existed in the associations between parental behaviors and adolescent functioning. In order to answer this query, tests of significant differences between two correlation coefficients were conducted. Using the zero-order correlation coefficients computed during the multiple regression analyses conducted for paternal warmth, paternal pressure, maternal warmth, and maternal pressure in relation to male and female academic achievement, depression, and anxiety, the investigator checked for possible significant differences between correlations using *r*-to-*z* transformations. The test of significance used was:

$$Z = z_1 - z_2 / \text{the standard error of the difference}$$

Each correlation coefficient  $r_1$  and  $r_2$  was transformed into a  $z$  value. The standard error of the difference between those two independent values of  $z$  is calculated as:

$$\text{square root of } (1/(n_1 - 3) + 1/(n_2 - 3)),$$

where  $n_1$  and  $n_2$  are the sizes of the two samples whose correlations are being compared. The probability value was set at  $p < .05$  (two-tailed, because there was no hypothesis about whether fathers or mothers and female or male adolescents would have a larger correlation). This probability is less conservative than the  $p < .01$  set for the tests of the hypotheses because the research questions were exploratory in nature. Table 29 provides an overview of the results of the tests comparing correlations for mothers versus fathers, and Table 30 provides an overview of the results of tests comparing correlations for female versus male adolescents.

Table 29

*Tests for Differences Between Fathers' and Mothers' Correlations*

Variables Correlated	Fathers' <i>r</i>	Mothers' <i>r</i>	Z value	Probability (2- tailed)
Warmth and Male Adolescent Academic Achievement	.08	.15	-.91	.36
Pressure and Male Adolescent Academic Achievement	-.30	-.22	-1.10	.27
Warmth and Male Adolescent Depression	-.29	-.39	1.51	.13
Pressure and Male Adolescent Depression	.35	.39	-.70	.48
Warmth and Male Adolescent Anxiety	-.27	-.29	.32	.75
Pressure and Male Adolescent Anxiety	.36	.39	.33	.66
Warmth and Female Adolescent Academic Achievement	.05	.05	-.03	.98
Pressure and Female Adolescent Academic Achievement	-.19	-.14	-.71	.48
Warmth and Female Adolescent Depression	-.30	-.31	.15	.88
Pressure and Female Adolescent Depression	.21	.23	-.26	.79
Warmth and Female Adolescent Anxiety	-.24	-.31	.97	.33
Pressure and Female Adolescent Anxiety	.28	.32	-.51	.54

Table 30

*Tests for Differences Between Boys' and Girls' Correlations*

Variables Correlated	Boys' <i>r</i>	Girls' <i>r</i>	Z value	Probability (2- tailed)
Paternal Warmth and Adolescent Academic Achievement	.08	.05	.46	.65
Paternal Pressure and Adolescent Academic Achievement	-.30	-.19	-1.56	.12
Paternal Warmth and Adolescent Depression	-.29	-.30	0.10	.92
Paternal Pressure and Adolescent Depression	.35	.21	2.00	.05
Paternal Warmth and Adolescent Anxiety	-.27	-.24	-.33	.74
Paternal Pressure and Adolescent Anxiety	.36	.28	1.26	.21
Maternal Warmth and Adolescent Academic Achievement	.15	.05	1.36	.17
Maternal Pressure and Adolescent Academic Achievement	-.22	-.14	-1.13	.26
Maternal Warmth and Adolescent Depression	-.39	-.31	-1.29	.20
Maternal Pressure and Adolescent Depression	.39	.23	2.45	.01
Maternal Warmth and Adolescent Anxiety	-.29	-.31	.29	.77
Maternal Pressure and Adolescent Anxiety	.39	.32	1.11	.27

Results from Table 29 revealed no significant differences in correlations involving fathers' and mothers' warmth and pressure. Gender of the parent did not have an effect on the relation between parenting behavior and male or female achievement, depression, and anxiety. Results from Table 30 revealed significant gender differences between parental pressure and male and female adolescents' depression levels. The correlation between paternal pressure and male depression ( $r = .35, n = 361$ ) was higher

than the correlation between paternal pressure and female depression ( $r = .21, n = 388$ ) and this difference in correlations was significant ( $p = .05$ ). The correlation between maternal pressure and male adolescent's depression ( $r = .39, n = 357$ ) was higher than the correlation between maternal pressure and female adolescent's depression ( $r = .23, n = 389$ ), and this difference was significant ( $p = .01$ ).

These two significant differences between the correlation coefficients by gender of the adolescent suggest that Chinese male adolescents' depression levels may be more associated with the level of pressure from either the father or the mother. Although greater levels of paternal or maternal pressure are associated with greater levels of depression in both boys and girls in this sample of Mainland Chinese high school students, the impact that the pressure to achieve has on depression appears to be stronger for males than for females. There were no other significant gender differences found between parental behaviors and adolescent academic achievement, depression, and anxiety.

#### *Gender Differences in Adolescents' Academic Achievement, Depression, and Anxiety*

In contrast to the exploratory nature of most of this study, there was sufficient prior literature to warrant hypotheses regarding gender differences in Mainland Chinese adolescents' levels of academic achievement, depression, and anxiety. These hypotheses are presented below. In order to test these hypotheses, three independent samples  $t$ -tests were conducted, comparing males with females. The alpha levels for these tests were set at  $p \leq .05$ . Results from these three  $t$ -tests were presented earlier but will be discussed here for each hypothesis.

*No significant difference in academic achievement was expected between Mainland Chinese males and Mainland Chinese females, given that recent literature suggests that education is highly valued for both girls and boys in China.* It is important to note that one cannot conduct a test that truly supports the null hypothesis, but this *t*-test was conducted to identify whether there was any evidence of a gender difference in achievement. Results from this 2-tailed *t*-test revealed no significant difference between adolescent males and females on their academic achievement,  $t(908) = .51, p = .61$ . The mean score was 201.65 for males ( $n = 428$ ) and 200.46 for females ( $n = 482$ ).

*Hypothesis 1a: Chinese females will display higher levels of depression than Chinese males.* Results from this 2-tailed *t*-test revealed no significant difference between adolescent males and females on their depression levels;  $t(935) = -.45, p = .65$ . The mean score for males ( $n = 441$ ) was 41.71 and for females ( $n = 496$ ) 41.93.

*Hypothesis 1b: Chinese females will display higher levels of anxiety than Chinese males.* Results from this 2-tailed *t*-test revealed no significant difference between adolescent males and females on their anxiety levels;  $t(977) = -1.47, p = .14$ . The mean score for males ( $n = 461$ ) was 38.21 and for females ( $n = 518$ ) was 38.77.

*Summary of results for gender differences in adolescent functioning and associations between parental behaviors and adolescent functioning.* No significant differences were found between adolescent males and females on academic achievement scores. Contrary to data reported in other studies on Mainland Chinese adolescents, hypotheses 1a and 1b were not supported in that independent samples *t*-tests revealed no significant differences in depression and anxiety levels between males and females in this particular sample of Mainland Chinese adolescent students.

In regard to gender moderating the associations between parental behaviors and adolescent academic achievement, depression, and anxiety, tests for differences between two correlation coefficients only revealed significant differences between male and female adolescents in terms of the relationship between depression levels and paternal and maternal pressure to achieve. Maternal and paternal pressure had a stronger association with Chinese boys' depression than with Chinese girls' depression in this sample. No other significant gender differences were found between parents and between adolescents in relation to the association between parental behaviors and adolescent. Thus, there were minimal gender differences overall in the relations between parental behavior toward adolescents and the adolescents' functioning.



## Chapter Five

### Discussion

#### *Associations Between Parental Behaviors and Adolescent Functioning*

The results of the present study indicated that associations exist between parental warmth and pressure to achieve (a form of behavioral control) and adolescent academic achievement, depression, and anxiety. Previous research (Fan & Chen, 2001; Spera, 2005; Steinberg, 2001) have suggested that warmth and behavioral control influence the school success and mental health of adolescents living in the United States, but little research has examined these associations within Mainland Chinese families, and no studies have explored the effect of gender on the parent-child relationship.

It should be noted that in the present study, the statistical tests (multiple regression analyses, Pearson correlations, tests of correlation coefficients) used to test the research questions assess correlations or associations between two variables and not the causal direction of the relationship. The following discussion regarding the associations between parental behaviors and adolescent functioning is guided partly by previous research and theory, but it is important to remember that these results do not imply that academic achievement, depression, and anxiety in Beijing high school students are directly caused by the actions of parents. First, it is possible that problems in adolescent functioning have led to less parental warmth and more parental pressure. In terms of causal direction, adolescents' anxiety, depression, and academic problems may have affected how their parents interacted with them. Alternatively, it is possible that other factors not measured in the present study (such as biological predispositions, peer relationships, and parental spousal relationships) are related both to parenting behaviors

and to adolescent academic achievement, depression, and anxiety. For example, parents who are dealing with high levels of marital conflict may be harsher and less warm to their children because of the stress that their marriage is creating for them, and their children may respond to parental marital conflict with anxiety and depression; thus the “third factor” of marital conflict may account for the observed association between parenting behavior and adolescent functioning.

These two examples are used to illustrate the point that no causal direction in the associations among the predictor and criterion variables are implied in the following discussion of the results from this study’s analyses. Based on existing literature and theory parents could have the potential to influence their children’s academic achievement, depression, and anxiety in a positive or negative manner, but the opposite can also be true in that children’s behaviors can also influence how their parents interact with them, and additional factors may influence both parenting behavior and adolescent functioning.

In the present study parental warmth was positively associated with adolescent academic achievement and negatively associated with depression and anxiety. Parental pressure to achieve was negatively associated with achievement and positively associated with depression and anxiety. These results are consistent with findings from prior studies that found the same associations between these two parenting behaviors and the three adolescent variables (Fan & Chen, 2001; Steinberg et al., 1994).

This study explored these relationships on a more detailed level, in order to ascertain if the relation between parental behaviors and adolescent functioning varies as a function of gender. Larson and Richards (1994) argued that mothers and fathers have

unique and different relationships with their children depending on the gender of their progeny, and Laible and Carlos (2004) contend that very little research has been conducted that examined the separate and unique influences of maternal and paternal parenting behaviors on male and female outcomes. The idea that parents may treat their sons differently from their daughters can be viewed through the lens of ecological theory, which would contend that the cultural values found within the larger macrosystem infiltrate into the microsystem of the parent-child relationship and have an impact on how parents behave and interact with their children. Feminist theory would extend that argument by postulating that social expectations regarding parental roles are based on preconceived notions related to gender as opposed to personal ability or identifiable skill.

Generally speaking, females are expected to occupy the caregiver/homemaker role in the family whereas males are taught to uphold the role of the provider/breadwinner (Uba, 1994). These positions that parents maintain also have the potential of being transmitted to their children based on gender. Mothers and fathers may socialize their daughters to focus on being the nurturer in their family whereas their sons are trained to be the individual who take care of the physical and financial needs of the household.

Some researchers have suggested that because of these different societal expectations of gender roles, mothers typically spend more time with adolescents, are involved in a wider range of activities with them, and are more likely to provide caregiving than fathers (Holmbeck et al., 1995). Conversely, fathers tend to spend more time doing leisure and instrumental activities with adolescents (Holmbeck et al., 1995). All of these interactions generally result in more mutuality, closeness, and support for the

mother-child as opposed to the father-child relationship during the adolescent period (Collins & Russell, 1991).

Laible and Carlo (2004) have argued that because of the different relationships that mothers and fathers have with their children, warmth/support and control from mothers and fathers may have different effects on adolescent functioning. In other words, if it is true that children are typically emotionally closer to their mothers than their fathers, maternal warmth would have a stronger relationship with adolescent anxiety and depression than paternal warmth because it has more meaning and significance for the children. In contrast, because fathers typically spend more time performing instrumental activities and providing lessons for their children, paternal pressure may exert a heavier influence on adolescent academic achievement than maternal pressure (Holmbeck et al., 1995).

These influences that parents have on adolescent functioning can also change depending on the gender of the child and what their expectations may be regarding family roles. For example, if it is true that boys are more emotionally closer to their mothers because they provide more care and nurturance than fathers, then there is a possibility that male adolescents may not be affected as much by paternal warmth and support because they are not use to these types of interactions from their dads. Conversely, if sons are in greater need of emotional attention from their fathers than from their mothers, then their reactions to variations in their fathers' levels of warmth may be stronger than their responses to variations in their mothers' warmth and support.

Currently these ideas and theories on the intricacies of the dyadic relationship between a parent and a child have not been tested extensively in the literature, and no

studies have examined the influence of gender on the associations between parental behaviors and adolescent development in Mainland Chinese families. This study was an attempt to address such possible gender differences. The results indicated that there were some gender differences in the relations between parenting behavior and child functioning, although the associations found in this study do not indicate the direction of causality in such associations.

The first three sections below are focused on the associations found between parental behaviors and each adolescent outcome (academic achievement, depression, and anxiety). Results regarding adolescents' gender differences in achievement, depression, and anxiety are presented next, along with an examination of gender differences in the relations between parental behaviors and adolescent achievement and mental health. Finally, the implications of the current results for Mainland Chinese families are considered, limitations of the study are discussed, and recommendations are proposed for future research.

*Association between parental behaviors and adolescent academic achievement.*

Results indicated that pressure to achieve from fathers and mothers were both associated with the level of school success that their children were able to achieve. This finding was consistent with other studies that also found higher levels of parental pressure to be associated with lower levels of mathematical achievement in Asian American students (Campbell & Mandel, 1990). Chao (2001) has mentioned that within Mainland Chinese families, the effect that parental pressure to achieve has on adolescents can depend on the perceptions of the children. If Chinese adolescents believe that their parents want them to do well in school because they love them and are concerned for their well-being, then

these teenagers may not be as negatively affected by high academic expectations as their counterparts who view the pressure as harsh, burdensome, and overbearing.

It is possible that the adolescents in this sample did not perceive parental pressure from either parent as a positive action that could help them to do well in school. It may be that these students believed that the demands being placed on them were excessive. The fact that girls' and boys' academic performance were negatively associated with parental pressure regardless of which parent was applying the pressure may be an indication that in present day China fathers and mothers both have an active role in the school success of their children.

Paternal and maternal warmth had positive significant Pearson correlations with male academic achievement but did not enter the multiple regression analyses as a statistical predictor of male academic achievement, although the  $\beta$  coefficient for paternal warmth and male academic achievement approached significance. Paternal and maternal warmth were not found to be associated with female academic achievement, either in the Pearson correlation or final regression model. These findings partially supported the data found in Stolz et al's. (2004) study that identified paternal and maternal support being associated with achievement in Mainland Chinese male students but not female students.

Paternal and maternal warmth appear to have a positive association with male achievement in the current study. This finding indicates that this type of parental behavior may be beneficial for boys with regard to their school work. Males have traditionally been expected in Mainland China to take on the provider duties in their household (Yeung, 2004), and excelling in school is a good method of obtaining a financially stable and secure job. Parents' pressure to succeed in this endeavor may be excessive, and the

Chinese males in this sample could have been more responsive than the females to any support that was given to them by their parents. For boys, the encouragement that they received from their fathers and mothers could have been viewed as a welcome change from the harsh demands that they were normally accustomed to and might have helped them to perform better in school.

This possible explanation could also relate to the findings that paternal and maternal warmth did not have an association with female academic achievement. In the same manner that Chinese males in Mainland China may be expected to succeed in school, Chinese females may be given the same high expectations without the fear of what failure may bring to their lives. In essence, adolescent female students in this study may not have been as affected by their parents' warmth as their male counterparts because expectations for girls regarding their school performance may not have been as high as it was for boys. This is not to say that the girls in this sample were not affected by the level of pressure that they received from their parents. It may be possible that warmth was not a factor for the female students in this study because they may have perceived pressure differently from the male students. A further explanation of this difference in the perception of pressure is presented later.

It should be noted that the female students in this study may have perceived other viable options with regard to their future endeavors, in that failure to perform well in high school would not prevent them from finding and marrying males who did possess a college degree and high paying job. Women could also have the option to become housewives without losing any sense of pride or social status in society, whereas men's futures depend much more on obtaining a college education and becoming the financial

provider for their families. These alternatives for females' futures may be another factor accounting for to the lack of an association between parental warmth and their academic achievement, because their imminent success and happiness did not depend on this singular endeavor.

Another possible reason for the finding of a significant correlation between parental warmth and boys' academic achievement but the lack of a similar correlation for girls might be the amount of variance found in parental warmth scores for boys versus that for girls. The lack of a significant association among girls may have been due to fathers and mothers being more consistent (varying relatively little) in the amount of support and affection for their daughters; i.e., the limited variance attenuated correlations between parental warmth and child functioning. Conversely, parents may have varied more in their levels of warmth toward their sons, and this variation in behaviors may have contributed to the significant correlation between warmth and male academic achievement.

An examination of the standard deviations in Table 5 indicate that the degrees of variance in parental warmth shown to boys ( $SD = 11.59$  for fathers,  $10.75$  for mothers) and girls ( $SD = 12.06$  for fathers,  $11.78$  for mothers) were very similar; in fact the variance was actually a little lower for boys than for girls. Therefore, a difference in variance could not account for there being more significant findings for boys than for girls.

Although causal direction cannot be determined, the overall results of this study suggest that parental pressure is an important factor in urban Mainland Chinese adolescents' success in school. Chinese parents are generally inclined to use strict and



substantial pressure when dealing with educational issues (Chen et al., 2000), and they may be more comfortable in administering these types of behaviors with their children than parenting in a more authoritative manner. Perhaps warmth did not have as strong an association with the variance in achievement levels because the children were not accustomed to receiving support and encouragement from their parents in this area of their lives, and therefore were not as attuned to these actions in their lives.

One possible reason why warmth was associated with male achievement in the univariate analysis but was not included in the final regression model may be due to the issue of multicollinearity discussed earlier. On their own, warmth and pressure from either parent were correlated with male academic achievement, but because both variables were entered into the regression model simultaneously there was competition for common variance that these predictor variables shared with male achievement, with the outcome being that in the multiple regression analysis parental pressure accounted for more variance in achievement level than did parental warmth. This underscores the argument made earlier that high demands on education may have a stronger association with students' achievement levels than warmth, presumably because it is what Chinese adolescents expect from their parents.

Although parental education was not a variable of interest in this study and was only addressed as a control variable, multiple regression analyses indicated that father's education was associated with the level of academic success in male and female students. Greater levels of paternal education were associated with greater levels of adolescent school achievement. Students in this study may have perceived their fathers as role models and wanted to emulate their dads' educational attainment. It could also be that

fathers with higher levels of education had the intelligence to help their children with their school work and could have acted as a secondary source for knowledge and guidance for Chinese students. It also is important to note that mothers' education was dropped from the analyses due to high multicollinearity with fathers' education, so fathers' education in essence served as a proxy for parental education in the analyses, and the potential positive influence of mothers' education on adolescents' academic achievement should not be overlooked.

No significant interaction effects were found between parental warmth and pressure on adolescent academic achievement for either gender of the parent or adolescent. Parental warmth and pressure may have separate main effects on the achievement levels of male and female adolescents, but it does not appear that there are any moderating effects between these two variables. This could presumably be the result of parents exhibiting so much pressure on their children that the effects of warmth on achievement were effectively nullified in the interaction effect.

*Association between parental behaviors and adolescent depression.* Paternal and maternal warmth and pressure to achieve were significantly associated with male depression in this study. Higher levels of warmth were associated with lower levels of depression, whereas higher levels of pressure to achieve were associated with higher levels of depression. This finding partially supports the prediction that warmth and pressure have an influence on the mental health of adolescents (Riley, 2003; Steinberg, 2001), and for the males in this sample these associations appear to hold true for both fathers and mothers. For the female adolescents, only maternal and paternal warmth were negatively and significantly associated with female depression. Paternal and maternal

pressure had positive significant Pearson correlations with female depression but did not enter the multiple regression analyses as a statistical predictor of female depression, although the  $\beta$  coefficient for paternal pressure and female depression approached significance.

In previous studies it has been reported that only maternal warmth/support had a significant relationship with adolescent depression (Chen et al., 2000; Riley, 2003). Results from this study would suggest that fathers' warmth can also have an impact on the mental health of their sons and daughters, and it may be as equally important for fathers to express feelings of support and concern for their children as it is for mothers. If parental warmth can help to lower some of the mood-lowering effects that can occur from stressful life events (Belsky & Pensky, 1988), then it is reasonable to assume that warmth from fathers and mothers may help to reduce some of their children's depressed moods that are created by the stress of trying to meet parental demands for academic achievement.

The association between parental pressure to achieve and depression levels in Chinese males in this study extends the arguments made by other researchers (Paulson, 1994; Riley, 2003) regarding the negative effects of this behavior on children's psychological health, and it suggests that both fathers and mothers may have a role in the development of this negative outcome among male students. For the males in this study, excessive pressure to do well in school may result in feelings of sadness or despair when they are unable to fulfill academic goals. The fact that both paternal and maternal pressure were correlated with female students' depression but were not predictors in the multiple regression analyses was somewhat surprising, considering that pressure to

achieve was found to be a predictor of female academic achievement. However, as mentioned earlier, there was a trend toward significance in the association between father's pressure and female depression. One explanation for this finding may again be the problem of multicollinearity among the predictor variables in the multiple regression analyses. Another possible explanation for this difference between male and female students may reside in the cultural expectations for education of boys and girls.

Although the One Child Policy and changing social norms have altered the way that families view the importance of a college degree for girls in Mainland China, it is possible that some of the families in this sample did not subscribe to these new ideas regarding the value of education for women. Some parents still may not have high expectations for their daughters' school success and therefore may not be as attentive or concerned over their school work. For families who have sons, however, the need to cultivate a solid educational career may be of high importance because of the belief that males need to provide and take care of their family's financial and physical needs.

Although the Chinese students in this study may have experienced high levels of pressure from their parents to do well in school, their perception of this pressure may have been very different depending on their gender. For the males, pressure may have been internalized as a directive to do well or face the consequences of failure. In essence, pressure is translated into the idea that if they do not succeed in their school work, it will be a mark of shame and rejection of love from their parents. Female students, who could have received the same amount or type of parental demands regarding their schooling, may have experienced pressure as an indicator that their parents cared for their well-being and wanted them to have a successful and productive life.

For the Mainland Chinese girls in this study, high demands for school achievement may have translated into the belief that there would be no negative repercussions if they were unable to attain their educational goals. In other words, female students could view parental pressure as encouraging and supportive with a high margin for error, while male students might perceive pressure from their caregivers as harsh and unrelenting, with very little room for mistakes. Unfortunately this study did not collect information about the adolescents' thoughts about the meanings of their parents' behaviors and the possible repercussions of poor academic performance, so at this point these possible interpretations of the study's findings are only speculative. Implications for further research on this topic are discussed later.

As stated earlier, there was a trend toward significance in the multiple regression analysis for father's pressure to be associated with female adolescents' depression. This finding may relate to the previous explanation that the children in this sample may have expectations regarding the roles that their parents are supposed to maintain. The girls may perceive their fathers as being the individual responsible for their schooling, even though in present day China mothers generally have an equal role in supervising their children's academic success (Chao, 2001). It is possible that the female students in this study are more responsive to their fathers' demands for high achievement because they perceive it as a more serious request than pressure from their mothers. This is not to say that the girls in this sample were dismissive of their mothers' desires for their school success, only that they may have attached more significance to the actions and opinions of their fathers.

Results from the analyses of the association between the interaction of warmth and pressure and adolescent depression revealed that both paternal and maternal warmth

moderated the effect of parental pressure to achieve on male and female adolescent depression levels. Higher warmth from either parent helped to lessen some of the negative association between pressure to achieve and depression, and both boys and girls appeared to benefit from the affection and support.

This finding confirms the argument made in previous research (Holmbeck et al., 1998; Laible & Carlo, 2004; Shek, 1998) that parental behaviors do not exist in a mutually exclusive manner, and that oftentimes a parent will engage in more than one type of behavior when relating with their children. There is evidence that the interaction of these behaviors has some association with adolescent depression in this sample of Mainland Chinese families. Some parents who place higher levels of pressure on their children also might be inclined to show greater signs of affection toward their progeny in order to provide a buffer against the consequences of excessive school demands on their offspring's psychological health.

The fact that warmth was found to be a moderator of pressure to achieve on depression for fathers and mothers suggest that it is equally important for both parents to be supportive of their sons or daughters when setting high academic expectations for their lives. It should also be noted that boys' and girls' mean depression scores were the lowest when paternal and maternal warmth was higher *and* paternal and maternal pressure was lower. This indicates that, in terms of their mental health, male and female students appear to function better when they are receiving higher amounts of warmth and affection and lower amounts of pressure from both their fathers and their mothers.

*Association between parental behaviors and adolescent anxiety.* Paternal warmth and pressure to achieve were significantly associated with Chinese male and female

adolescent anxiety levels in this study, both in the Pearson correlations and in the final multiple regression models. Higher levels of father's warmth were associated with lower levels of anxiety, whereas higher levels of paternal pressure to achieve were associated with higher levels of anxiety. For maternal behaviors, warmth was negatively and significantly correlated with male anxiety, and pressure was positively and significantly correlated with male anxiety. In the multiple regression analyses, maternal pressure to achieve was a significant statistical predictor of boys' anxiety, whereas there was a trend toward significance in the statistical predictive ability of maternal warmth on male anxiety. Maternal warmth may not have been a significant statistical predictor of male anxiety in the multiple regression analyses because of multicollinearity. Father's education, maternal warmth and maternal pressure were significantly associated with Chinese female adolescent anxiety levels. The direction of the association between mother's warmth and anxiety and mother's pressure and anxiety was parallel to father's warmth and father's pressure on female anxiety. With regard to father's education, greater levels of this variable was associated with lower levels of anxiety among girls.

The results indicated that the associations between parental behaviors and male and female anxiety levels may not be similar to those with adolescent depression. For example, boys' and girls' anxiety levels were associated with the level of pressure being given by either their fathers or mothers. With depression, however, paternal and maternal pressure were significantly associated with male depression in both the Pearson's correlation and multiple regression analyses. For females, paternal and maternal pressure had positive significant Pearson correlations with female depression but did not enter the

multiple regression analyses as a statistical predictor of female depression, although the  $\beta$  coefficient for paternal pressure and female depression approached significance.

This discrepancy may have been caused partly by warmth and pressure competing for variance in female depression scores in the final regression model (multicollinearity), or perhaps due to the distinctions that have been made in the literature regarding different factors involved in depression and anxiety.

Some of the symptoms related to anxiety that have been identified by researchers include sensitivity about failure, concern or worry about perceived threats, and an overall sense of worry (Barlow, 2002; Dong et al., 1994; Yang et al., 2000), whereas depression has been defined as feelings of worthlessness, hopelessness, or negative thoughts/feelings related to self-worth (Reynolds, 1992; Riley, 2003). Essentially, if anxiety is associated with worries and fears concerning potential dangers, then perceived dangers associated with failing to meet parental expectations for academic achievement may especially elicit anxiety in adolescents. Among the males in this sample, the potential for failure may also create thoughts of low self-worth and feelings of depression because of the central role that achievement has in their identity. In contrast, Chinese females may be worried or concerned that they are not living up to the expectations that their parents have placed on them, but these perspectives may not necessarily translate to depressive symptoms because their self-worth may be less tied to their ability to do well in school.

The associations between paternal and maternal warmth and male and female anxiety were consistent with the finding in the present study that affection from either parent was negatively correlated with male and female depression. It appears from the analyses that higher parental warmth may help to lower some of the concern that these



Mainland Chinese adolescents have regarding their school work or other areas of their lives.

The finding that in the multiple regression analysis there was a trend toward significance in the statistical predictive ability of maternal warmth on boys' anxiety is slightly different from the finding that maternal warmth was one of the main contributors to the variance in male adolescents' depression levels. It is possible that the male students in this study had become habituated to the support and love that their mothers gave to them and may not have been as affected or aware of such positive gestures.

A second perspective regarding the apparent weaker association between maternal warmth and male anxiety than between maternal warmth and male depression is that warmth may more directly address self-worth concerns involved in depression than it does the perceived dangers involved in academic failure. Thus, love and support from one's mother may contribute to a more positive self-concept, but they may do little to assuage males' fears of broad negative effects of poor academic performance (failure in a core aspect of the male role).

The finding in the multiple regression analysis that paternal warmth was a significant statistical predictor of male anxiety levels was also slightly different from the result that showed a trend toward significance in the statistical predictive ability of maternal warmth on anxiety in male students. One possible explanation for this could be that Chinese male students may have been more sensitive to paternal warmth because it was a behavior that their fathers normally did not display, so when it was expressed, it had more of an impact in these boys' lives. In the case of male anxiety, the male students in this study may have embraced the warmth being given by their fathers as opposed to

ignoring or devaluing its effect like they did for paternal warmth and academic achievement. This does not mean that male students rejected their mother's affection, only that the results appear to indicate that paternal warmth had a somewhat greater contribution to the variance in anxiety levels of Chinese male students than did maternal warmth.

One interesting finding from the analyses on maternal behaviors and female adolescent anxiety was that in addition to greater levels of maternal warmth and lower levels of maternal pressure, higher levels of father's education were associated with lower anxiety among girls. It is possible that the more education that the father received, the better he was at understanding the importance of providing support for his daughter during her academic career. Fathers who have gone through the arduous process of obtaining a good education in China may be more aware and sensitive to the demands and stress that come from doing well in school, and they may be more willing to either share their experiences with their daughters or else inform them of what to expect with their studies so as to better prepare them for their journey. Knowing what awaits them and the difficulties that they may encounter may provide some level of comfort for the girls in this study, helping to lower some of the anxiety that they felt from trying to succeed in school. Again, it is important to note that in order to control for multicollinearity between mothers' and fathers' education, father's education was used as a proxy for parental education in the multiple regression analyses, so the above explanation for the positive effect on daughters' anxiety of father's education may hold equally for mother's education.

It also should be noted that father's education was found to be negatively and significantly correlated with male anxiety in the Pearson correlations as well, although this predictor variable was not significant in the final regression models for paternal and maternal behaviors. This result would suggest that parents' education tends to be associated with lower anxiety for both girls and boys, and that having a parent who has undergone the rigors of academic life may have some benefits for male and female adolescent mental health.

In terms of the association between the interaction of parental levels of warmth and pressure and adolescent depression, paternal and maternal warmth were found to moderate the association between pressure to achieve and male and female anxiety, but the moderating effect of maternal warmth on maternal pressure and male anxiety was different from the other interaction effects. Similar to the finding regarding the interaction of warmth and pressure on depression, higher levels of maternal and paternal affection appeared to buffer or lessen the impact that higher academic expectations had on female anxiety. Females receiving the combination of higher levels of paternal or maternal warmth and lower levels of paternal or maternal pressure had the lowest mean anxiety scores.

Whereas paternal warmth also helped to lessen the relation between paternal pressure and male anxiety, this was not the case with maternal warmth and maternal pressure in relation to male boys' anxiety levels. Results from this analysis revealed that greater maternal warmth may have actually amplified as opposed to buffered the effects of maternal pressure on male student anxiety levels. The cell means in the 2 x 2 table indicated that the *difference* in mean anxiety scores between lower and higher pressure

groups was lower when maternal warmth was lower than when it was higher. This finding suggested that the greater the amount of warmth that was given by mothers, the more of a negative association existed between the amount of maternal pressure and male anxiety.

This discovery was surprising given the previous results that found that parental warmth acted as a buffer on the association between parental pressure to achieve and adolescent mental health. One possible explanation as to why this may have occurred is that the Chinese adolescent males in this sample could have been more emotionally close to their mothers than the adolescent females were. This speculation is based partially on the idea that in traditional Chinese culture boys commonly are favored over girls and generally are more pampered by their mothers because of the value and worth normally attributed to having a son (Jung, 1998). To the extent that Chinese boys have been pampered by their mothers, a combination of higher warmth and higher pressure from a mother may create a stressful conflict for a boy, in that the potential for losing his mother's support by failing to meet her expectations for academic achievement may be highly disconcerting. When there was greater maternal warmth and greater maternal pressure to do well in school, boys' may have felt a sense of heightened urgency to make sure that they did not disappoint their mothers when it came to their academic work.

Even with this exception, the overall results of this study indicated that warmth is a moderator of the relation between parental pressure to achieve and anxiety. Boys and girls generally experience less anxiety when parents provide higher levels of warmth and support and lower levels of pressure to achieve in their lives.

*Gender Differences in Adolescent Functioning and the Effect of Gender on the Associations Between Parental Behaviors and Adolescent Functioning*

Independent samples *t*-tests revealed no significant gender differences between male and female students on academic achievement, depression, and anxiety. These results suggest that the girls and boys in this particular sample had similar levels of academic performance and negative psychological symptoms. The lack of difference might possibly be attributed to the fact that these students came from two types of schools (key and ordinary) and may have had a wider distribution of mental health and achievement issues that obscured any gender differences. Another possible reason for the lack of significant gender differences could be the current emphasis that Chinese parents are placing on educational success for both male and female students, which was described in the literature review for this study.

In addition, tests for differences between two correlation coefficients revealed minimal gender differences overall in the relations between parental behavior toward adolescents and the indices of the adolescents' functioning. Results indicated that there were no differences between paternal warmth and pressure and maternal warmth and pressure on male or female achievement and anxiety. The two associations that did have a significant gender difference were for maternal and paternal pressure to achieve and the adolescent's depression. In both cases, the correlation between pressure to achieve from either parent and male adolescent depression was significantly greater than the relationship between parental pressure and female adolescent depression.

This finding relates to the earlier discussion regarding parental pressure to achieve and adolescent depression. For boys in this sample, pressure from either parent was a

significant statistical predictor of depression in the multiple regression analyses, whereas in the multiple regression analyses for girls there was a trend toward paternal pressure being a significant predictor of depression and a finding that maternal pressure was not a significant predictor of depression. The tests of difference between correlations provide additional support for the idea that for Mainland Chinese boys the expectation to do well in school may be higher than for Mainland Chinese girls. Failure to fulfill these high parental demands could potentially result in greater levels of depression because of family socialization that teaches males to attach their self-worth and status to their educational success.

#### *Limitations of This Study*

One general limitation of this study involves the limited generalizability of findings from this sample to the larger population of Chinese families. Results from this research cannot be applied to all Chinese parents and adolescents living in urban areas of China or other parts of the world. In addition, not every student or parent filled out the questionnaires related to the three adolescent dependent variables and two parenting behaviors. These missing data could have reduced the generalizability that can be made to a broader population of Chinese families further.

A second limitation is also related to the issue of external validity in that the sample was self-selective in nature. Students who volunteered for the original study may have had lower depression and anxiety scores or had better academic achievement, and thus may have been more willing to answer the questions. Additional selectivity of the sample may have been due to some parents refusing to give their children permission to participate. Given the cultural value of avoiding disclosure of personal problems or

concerns (Ho, 1987), the sample may not be representative of the general population in terms of adolescent academic achievement and mental functioning.

A third limitation involved the variables being assessed from the adolescent's perspective as opposed to the parents'. How children view their parents' behaviors may be different from how parents perceive their own actions, and if parental practices had been assessed from the perspectives of mothers and fathers the effects on adolescent functioning may have differed. In their meta-analysis, Wood et al. (2003) noted that the effects of parenting on adolescent anxiety disorders differed depending on if the behaviors were being assessed by the children or the parents. Generally speaking, child-reported measures of parental acceptance generally found that higher levels of parental acceptance were associated with lower levels of anxiety disorder while studies that used parent-reporting of parenting style generally found inconsistent results between levels of parental acceptance and adolescent anxiety. Although the authors did not offer explanations as to why these variations in adolescent anxiety occurred, their meta-analysis provides some argument for the need to examine both parents' and children's perceptions of behaviors in order to strengthen the research.

A fourth limitation that was mentioned earlier concerns the study being cross-sectional as opposed to longitudinal in nature. One way to reduce this limitation in future studies might be to examine a large group of students as they enter high school and follow their progress for the next three years. Measurements of their academic performance, mental health, and relationships with their parents could be taken once or twice during the school year, and the data from the three years could be compiled into a database and analyzed for patterns and causal relations. It would be imperative that the

students who are chosen for the study be pre-tested in order to determine baseline scores on the measures of their academic performance and psychological functioning.

A fifth limitation involved the questionnaire used to measure parental warmth. The survey assessed this variable as a broad overall construct of affection, support, and encouragement, but unlike the *IPI*, none of the questions on the *PARQ* are explicitly tied to academic achievement performance. In the studies that have been presented in this literature review, parental warmth has been found to be related positively to academic achievement, but the *PARQ* may not provide an accurate indication that warmth is connected to academic achievement because it does not measure warmth as being directed toward a particular outcome or behavior. This is not to say that the instrument lacks validity or reliability in terms of being able to assess paternal and maternal warmth and its relation with academic achievement. The issue is that there may be some uncertainty, if parental warmth is found to be significantly correlated and/or predictive of academic achievement, as to the fidelity of this relationship given that the survey that measures the predictor variable is not directly related to the outcome. In other words, the relationship may have the potential to be stronger if the *PARQ* assessed warmth in a manner that is connected to support and encouragement that is given to a child related to his or her school work.

#### *Implications of the Study's Findings for Mainland Chinese Families*

For thousands of years education in Mainland China has been seen as the great equalizer for all members of society. Achieving excellence in school meant an increased chance in obtaining a higher paying job and acquiring an elevated status among one's peers. The collectivistic nature of Chinese culture afforded a family the same positive



benefits that their son or daughter accomplished, which is why many families in earlier and present day Mainland China have placed such a heavy emphasis on academic success for their children.

There was a point in China's history when girls were not expected and sometimes not even allowed to attend school, but the advent of the One Child Policy program, along with subtle changes in the cultural landscape of the country, have opened the doors of educational opportunity for all children. Chinese parents have traditionally implemented high and oftentimes excessive demands on their children's school performance along with few displays of affection and warmth, with the hope that these methods would cultivate a stellar academic career for their progeny. The actual effects of these parental behaviors on the achievement levels of children, along with how these parenting tactics influence the psychological health of male and female adolescents, are relatively unknown.

The present study tested the associations that parental warmth and pressure to achieve had on the mental health and school success of Mainland Chinese students. Prior research into this area has focused on the gender of the parent or the child, but not on genders of parents and children at the same time.

Ecological theory emphasizes that individuals are shaped and influenced by their family and the society in which they live. Feminist theory postulates that these family dynamics and societal expectations help to create roles for men and women that have tended to typecast each individual into assigned duties and responsibilities. These rules guide the interactions and behaviors that parents engage in with their children and can

lead to predetermined notions of how each child will respond to the behaviors of each parent.

It has been argued that mothers and fathers occupy different roles and responsibilities when it comes to the care and management of their children, and they may overtly or covertly transmit these gender expectations on to their children. For example, Chinese fathers may behave in a different manner with their sons than with their daughters. A father may be more strict and stern with his son and show little affection because he believes that this is how fathers are supposed to behave with boys in order to help them be responsible and emotionally strong. In contrast, a father may coddle a girl because he believes that females need attention and support because they are dependent on men to provide for their emotional and physical needs. Both of these parent-child interactions could help to perpetuate traditional gender roles, and children's emotional health may suffer as a result of these rigid standards and practices.

Another way that gender expectations might influence parenting behavior is through the *absence* of a parental action based on a belief that it would not have any effect on the child's development. For example, a Chinese mother may not try to discipline her son or teach him about social rules because she believes that this is the responsibility of her husband and that the impact of her guidance on her son's behaviors would be minimal at best. Alternatively, boys may welcome advice from their mothers because it may give them a new perspective in their lives. The preconceived notions that parents possess regarding their duties as fathers and mothers, as well as the attitudes that they believe their children maintain, may cause them to ignore or minimize the potential influence that their behaviors may have on their sons or daughters.

Thus, an examination of gender differences in relations between Chinese parental behaviors and adolescent functioning was a key focus of this study. Knowledge that variations in the associations between paternal and maternal behaviors and male and female adolescent functioning existed would provide new information as to the structure and nature of these relationships. The overall results from this study confirm that warmth and pressure from both Mainland Chinese fathers and mothers were associated with the academic success, depression, and anxiety levels of their children. The fact that paternal and maternal actions are correlated with boys' and girls' achievement, depression, and anxiety is important to know because it establishes the important influences that fathers and mothers can have on the well-being of their sons and daughters.

With regard to school achievement, results confirmed that pressure from either parent had a statistically significant and negative relation with the achievement levels of boys and girls. In terms of the practical implications of these results, it would appear that Chinese parents may need to re-evaluate their longstanding belief that high demands and excessive pressure can produce better academic achievement for their children. The findings indicated otherwise, and if parents continue to raise their children in this manner it may lead to more school-related problems.

Another thing that Chinese parents may want to consider is the level of warmth that they are providing for their children. Pressure has become so familiar to Chinese adolescents that they may not appear to even acknowledge or show awareness of how warmth may have assisted them with their school performance. This heightens the need to encourage Mainland Chinese parents to be more overtly affectionate and supportive of

their children's school work so this support may counteract the significant negative influence that parental pressure appears to have on achievement.

The results for the associations between parental warmth and pressure on depression and anxiety levels in male and female students were consistent with prior research on these two parenting variables. A notable finding in the analyses was the stronger impact or association that pressure to achieve from either parent had on male depression, which could theoretically be attributed to fathers and mothers in this study placing heavier expectations and demands on their sons achieving high success in school than their daughters.

Whatever the parents' motives may be, the end result does not appear to be favorable for the mental health of male adolescents. Chinese parents may want to reduce some of the "all or nothing" rhetoric commonly used with sons in terms of the importance of an education in their lives, or perhaps incorporate elements of support and praise along with their expectations. This study has indicated that support has some positive effect on reducing the negative impact that parental pressure has on both depression and anxiety for males and females, with one variation (maternal warmth moderating maternal pressure to achieve on male anxiety).

Even though significant gender differences in the associations between parental behaviors and adolescent functioning were found between boys' and girls' depression levels, overall there were no major gender variations in relations between parental behavior and adolescent functioning. Generally speaking, these findings suggest that the idea that variations might exist among different types of parent-child relationships (e.g., fathers and sons, mothers and sons) may not be applicable to the sample in this study. In

other words, both fathers' and mothers' parenting behavior to some degree was related to girls' and boys' mental health and school success, as opposed to only mothers' warmth being associated with male and female adolescent depression levels and only father's pressure being associated with male and female academic achievement.

These results, however, also revealed that Mainland Chinese parents' expectations that mothers' and fathers' behaviors have different effects on children may be based more on gender role stereotypes than on reality. For example, the finding that paternal warmth was related to male depression would suggest that boys may be influenced not just by their mother's warmth but also their father's level of affection and support. Therefore, Mainland Chinese parents may need to be more aware that their actions have the potential to affect their children's school success and mental health, regardless of their gender or the gender of their child. Based on the overall results from this study, mothers and fathers in this study should be made aware of the possibility that adhering to strict gender roles or cultural expectations regarding appropriate parental behaviors may not be conducive to the healthy development of their children.

These examples and associations between parental behaviors and adolescent functioning are not meant to be applied to all families living in Mainland China. It is possible that a large percentage of Mainland Chinese parents have made attempts to alter or refine their interactions to reflect a less demanding persona for their children's academic achievement, and fathers and mothers may also be displaying more warmth and affection with their sons or daughters in light of the One Child program. The salient point to emphasize to Mainland Chinese parents is that fathers and mothers should never

assume that their actions do not carry any consequences for their children because of the gender of their progeny.

One valuable conclusion for Chinese families to take from this study is to never typecast one another according to gender. Parents should interact with their children without any defined set of standards regarding how their son or daughters are supposed to respond and behave, and to remember that each of them has an important role in the development of their children's educational, psychological, and emotional health. Parenting classes can be developed to develop parents' skills for interacting in a constructive manner with their children and to help them understand the pervasiveness of gender roles and values within family dynamics.

This notion of parental responsibility could be useful when considering therapeutic interventions with Chinese families. Parents who bring their children to therapy because of school related issues may be operating under the assumption that their sons or daughters need help to become more responsible and diligent in their coursework, and that the therapist needs to work only with their child because he or she is the one displaying the problem behavior. Based on results from this study, accountability may also rest with the actions or inactions of the parents as well, and effective therapy sessions may need to involve assessing the role of the parents in their children's academic and mental health.

Chinese parents with traditional values may balk at this form of intervention and perceive requests to change their behaviors as insulting or threatening. The key for therapists may be to approach the situation from a collaborative perspective, in that the therapist could query the parents as to what they think could be done to help their

children either perform better in school or deal with their feelings of self-worth and anxiety. The therapist could engage the parents by reframing the need to change their behaviors as actions that show their care and concern for their children's well being. In other words, therapists could use the belief that most Chinese parents want the best for their children as an opportunity to help these parents alter some of their behaviors in a way that becomes beneficial to their sons or daughters.

It is important to note that before any of these techniques are utilized the therapist should spend time learning about family dynamics, gender expectations, and values and beliefs of the parents and the children. Individual sessions with parents and the adolescent may help to facilitate these discussions, because sometimes children may not be as honest or open in the company of their parents. This will allow the therapist to identify the key areas in which to intervene and can also help to establish trust and security between the family and the therapist, which is vital for the therapeutic sessions to be successful.

#### *Suggestions for Future Research*

As much as this study provided some answers as to the existence and strength of associations between parental behaviors and adolescent achievement, depression, and anxiety, there were also additional questions raised by the findings. One question relates to why maternal and paternal warmth were not significantly correlated with female academic achievement as they were with male academic achievement. Possible reasons why this occurred were presented earlier, but they still provide an incomplete picture as to the dynamics of this parent-child relationship. Another question was raised by the unexpected finding that maternal warmth increased the negative association between maternal pressure and male adolescents' anxiety. The explanation presented by this

researcher was that males were closer to their mothers due to the Confucian principle that men superseded women in all phases of life.

However it is also reasonable to assume that the females in this study were as emotionally close with their mothers as the males, especially considering the influence of The One Child Policy on family relationships; yet this type of moderator effect was found only with male anxiety. It may be that parents in this sample still viewed males as being more important than females, even when their only child was a girl. If this was indeed the case, then parents who had a son may have inundated him with attention and resources to succeed in school, but for parents with girls less focus may have been placed on their academic accomplishments. This rationale is connected to the idea that girls in this study may not have been as pressured to succeed in school as the males, but without additional information it is difficult to arrive at a solid conclusion. Future research should include more extensive assessments of the views that parents have regarding appropriate parenting behavior, goals for their children, etc.

A final question that was raised by this study was the reason why no interaction effects were found for parental warmth and pressure on adolescent academic achievement. This may be related to the degree to which the prevalence of pressure to motivate adolescent school performance could have negated the effects of warmth when the two types of behavior were combined, but it is unknown what other factors may have been influencing these associations.

These questions could be addressed in further research by using a mixed methods approach in the study. On the one hand, standardized questionnaires can be distributed to students, and on the other hand relatively open-ended qualitative interviews can be



conducted with a handful of individuals in order to obtain more detailed information on the variables being measured. For example, students can be queried about what warmth and pressure mean for them on a cognitive and emotional level, and whether these perceptions change depending on which parent is enacting the behavior. By combining quantitative and qualitative research, it may be possible to understand why certain parental actions have a stronger association with adolescent functioning within a particular student gender.

Another suggestion for future research is to add more questionnaires to the study to broaden the variables assessed that may influence parenting behavior and adolescent functioning. One example might be a survey that explores the level of acceptance or assimilation of cultural norms and standards by the parents and children. This type of instrument could provide information about the level of adherence to societal beliefs that an individual possesses and might help in understanding why parental pressure was not associated with female depression as much as it was with male depression.

A longitudinal study could provide important information regarding the causal relationships among the variables. In the present study it has been confirmed that pressure to achieve is negatively correlated with academic achievement. What is unknown is the precise direction of this relationship. Is it that students were performing poorly in school and therefore more pressure was applied by their parents in response to this situation, or did excessive parental pressure result in a downward spiral in achievement? In other words, are parental behaviors reactive or proactive with regard to their children's school work?

A longitudinal study would help to assess the causal pathways among parenting, academic achievement, and mental health. An inquiry could be made as to whether high parental pressure to achieve leads to lower academic achievement, which in turn results in higher levels of depression and anxiety; or perhaps it is low warmth from parents that causes adolescents to become depressed, which then affects their ability to do well in school. Testing path models might help determine the answers to these questions.

Future research could also focus on collecting data from two different cohorts. Although the ages of the parents were not assessed by the original researcher and were not a variable of interest in this study, there is a possibility that the fathers and mothers in this sample could have been born prior to the One Child and Open Door programs. If this is the case, then the values and expectations that these parents have may be more reflective of traditional Chinese beliefs as opposed to the newer attitudes and perspectives of parents who were born right before or after the implementation of the two governmental policies. What this may mean is that although the students in this sample grew up in a country that was experiencing major transformations in educational values and perspectives, their parents likely were born in an era that emphasized the importance of school for males but not females. The time-honored standards that these fathers and mothers have maintained could have potentially influenced some of the associations that were found in this study's results.

By including families that were created during the progressive period in China's history (e.g., parents who grew up in the late 1970s or early 1980s), a comparison could be made between the two groups to see if cultural values and assimilation of these values are different between these cohorts. Data from this type of study might be able to provide

new information on shifts in parents' views of the value of an education for their children. Results could also elucidate the perspectives that parents and children have regarding academic achievement, how these perceptions have changed over time, and whether modifications in social norms and policies influence how parental pressure and warmth affect boys' and girls' mental health and school success. Although all of these questions regarding parental behaviors and adolescent functioning may not be fully answered by utilizing different cohorts, this strategy still may add another key piece of information regarding the influence that societal expectations for gender roles and behaviors have on parent-child interactions.

A final suggestion would be to include the type of school attended by Chinese students as a variable of interest in the analysis, in order to assess if the school as a microsystem has any association with adolescent academic and mental health. For the present study, different schools were utilized in order to obtain variation in family backgrounds and student academic records, but the main focus was on gender as a possible moderator of the association between parental behaviors and adolescent academic achievement, depression, and anxiety.

Appendix A: Overview of High School Sample

School	Grade	Total Sample Size	Total # Filling out Questionnaires
Beijing Univ. Middle (High) School (Key)	1 (10th)	89	80
	2 (11 <sup>th</sup> )	96	60
	3 (12 <sup>th</sup> )	85	60
	<b>Total</b>	270	200
No. 80 Middle (High) School (Key)	1 (10th)	103	89
	2 (11 <sup>th</sup> )	85	73
	3 (12 <sup>th</sup> )	120	53
	<b>Total</b>	308	215
No. 2 Middle (High) School (Ordinary)	1 (10th)	108	103
	2 (11 <sup>th</sup> )	105	95
	3 (12 <sup>th</sup> )	113	107
	<b>Total</b>	326	305
No. 3 Middle (High) School (Ordinary)	1 (10th)	126	91
	2 (11 <sup>th</sup> )	96	85
	3 (12 <sup>th</sup> )	100	101
	<b>Total</b>	322	277
<b>Total</b>		1226	997

**Sample Size of Participants from Key and Ordinary Schools**

	Key High Schools	Ordinary High Schools
1 (10th)	169	194
2 (11 <sup>th</sup> )	133	180
3 (12 <sup>th</sup> )	113	208
Total	415	582

Appendix B:  
Announcement Letter  
Project Title: Beijing High School Students Experience in Preparing for College

Date

Dear Parents,

\_\_\_\_\_ High School has agreed to participate in a research study conducted by Beijing Normal University in conjunction with the University of Maryland, U.S.A. We are attempting to learn more about high school students' experiences as they prepare for their college education. In our research study, students will be asked to complete a set of questionnaires about perceived family characteristics and adolescent depression and anxiety. No information that would identify individual participants will be collected, in order to insure that confidentiality is protected. A major benefit of the study is that it will increase knowledge about factors that are associated with levels of anxiety and depression among high school students, and the findings may help develop effective forms of counseling for students who are experiencing high levels of stress.

Your child's participation in this study would be very helpful to the success of the project. However, there will be no consequences to your child or to you if your child does not participate in this research. Teachers and administrators from the high school will not be in the classrooms when the questionnaires are distributed. Beijing Normal University researchers will distribute the questionnaires only to those students who return the attached consent forms. It is estimated that it will take less than one hour for students to complete the questionnaires, which will be administered on \_\_\_\_\_. We do not anticipate that participating in the research will be stressful for the students; however, if at any time a student experiences discomfort while participating, he or she can stop participating, with no negative consequences.

Attached is a consent form that describes the study's purpose and procedures and asks for your written permission for your child's participation in the research project, as well as your child's written consent to participate. If you and your child both agree that he or she will participate, both of you should sign and date the consent form and return it to the child's teacher in the high school by the end of the week, in the sealed envelope we have provided. Also, if you decide that you do not want your child to participate, please put the unsigned consent form into the envelope, seal it, and have your child return it to the teacher. Therefore, the teacher will return all of the sealed envelopes to the researcher from Beijing Normal University and the teacher will have no knowledge about which students will participate.

Sincerely,

## Appendix C: CONSENT FORM

### Research on Adolescent Perceptions

#### **PART I. Initialed by Parent and Child \_\_\_\_\_**

##### **Research Purpose and Procedures**

This study on adolescent adjustment is intended to provide research data about adolescent perceptions of family characteristics and adolescent levels of depression and anxiety. The research will be conducted by Professor Fang Xiaoyi of the Institute of Developmental Psychology at Beijing Normal University in conjunction with Professor Norman Epstein and Ms. Pamela Riley of the Department of Family Studies at the University of Maryland, U.S.A. The results of the research will provide important information to mental health professionals about factors that are associated with adolescent distress, and may lead to the development of more effective mental health services to treat anxiety and depression. Participation by students will be helpful in producing useful results, but there is no requirement for any student to participate.

If a student and his or her parents give their permission by signing this consent form, the student then will participate in the research by completing questionnaires at school. These questionnaires will be distributed and collected in students' classrooms by researchers from Beijing Normal University. It will take approximately one hour to complete the questionnaires. While students are completing the questionnaires in their classrooms, teachers and school administrators will not be present in the classroom, and will not know whether or not a particular student participated. This study is voluntary. No identifying information such as the students' names or addresses will be collected, so the students' responses to the questionnaires will be anonymous. To insure privacy, students will be instructed by the researchers not to discuss the decision to participate nor the content of their responses with one another. Students who decline to participate should not sign the consent form but should place it into the envelope provided, seal the envelope, and return it to their teachers.

##### **Risks and Benefits**

The questionnaires consist of statements about a student's perceptions about family relationships, as well as any anxiety and depression symptoms that the student may experience in daily life. There are no known risks to students from participating in this research. The researchers will inform the students before the questionnaires are distributed that it is unlikely that they will feel upset by thinking about the questions. If a student does become upset by completing the questionnaires, the researchers will assist the student in obtaining referrals to appropriate sources of counseling. Students will also be informed that school counselors are aware of the existence of the research and are available to talk to any student who wishes to discuss their reactions to the study. The students will be told that they should feel free to stop working on the questionnaires at any time if they do not wish to continue. There will be no consequences to any student who chooses not to participate. Students who choose not to participate can use the hour for quiet studying.



## Appendix D: PARQ

Here are some statements about the way mothers and fathers act toward their children. The first set of questions asks about your mother. The second set of questions asks about your father. Four boxes are provided after each sentence. If the statement is basically true about the way your mother or father treats you, then ask yourself, “Is it almost always true?” or “Is it only sometimes true?” For example, if you think your mother almost always treats you that way, put an X in the box under **Almost Always True**. If the statement is sometimes true about the way your mother treats you, then mark **Sometimes True**. If you feel the statement is basically untrue about the way your mother treats you, then ask yourself, “Is it rarely true?” or “Is it almost never true?” If it is rarely true about the way your mother treats you, put an X in the box under **Rarely True**. If you feel the statement is almost never true, then mark **Almost Never True**.

MY MOTHER . . .	Almost Always True	Sometimes True	Rarely True	Almost Never True
1. Says nice things about me.				
2. Talks to me about our plans and listens to what I have to say.				
3. Encourages me to bring my friends home, and tries to make things pleasant for them.				
4. Makes it easy for me to tell her things that are important to me.				
5. Makes me feel proud when I do well.				
6. Praises me to others.				
7. Talks to me in a warm and loving way.				
8. Says nice things to me when I deserve them.				
9. Is really interested in what I do				
10. Makes me feel wanted and needed.				
11. Tells me how proud she is of me when I am good.				
12. Makes me feel what I do is important.				
13. Tries to help me when I am scared or upset.				
14. Cares about what I think and likes me to talk about it.				
15. Lets me do things I think are important, even if it is inconvenient for her.				
16. Tries to make me feel better when I am hurt or sick.				
17. Lets me know she loves me.				
18. Treats me gently and with kindness.				
19. Tries to make me happy.				

MY FATHER . . .	Almost Always True	Sometimes True	Rarely True	Almost Never True
20. Says nice things about me.				
21. Talks to me about our plans and listens to what I have to say.				
22. Encourages me to bring my friends home, and tries to make things pleasant for them.				
23. Makes it easy for me to tell him things that are important to me.				
24. Makes me feel proud when I do well.				
25. Praises me to others.				
26. Talks to me in a warm and loving way.				
27. Says nice things to me when I deserve them.				
28. Is really interested in what I do.				
29. Makes me feel wanted and needed.				
30. Tells me how proud he is of me when I am good.				
31. Makes me feel what I do is important.				
32. Tries to help me when I am scared or upset.				
33. Cares about what I think and likes me to talk about it.				
34. Lets me do things I think are important, even if it is inconvenient for him.				
35. Tries to make me feel better when I am hurt or sick.				
36. Lets me know he loves me.				
37. Treats me gently and with kindness.				
38. Tries to make me happy.				



Appendix E: IPI

Directions: Please mark the box that corresponds to your answer.

1. My father doesn't believe me when I tell him that "I have no homework."	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
2. School would be more pleasant if my father was not as strict.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
3. My father is never pleased with my marks.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
4. I'm afraid to go home to my father with a failing mark.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
5. My father expects too much of me.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
6. My father pressures me too much with my homework.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
7. My father is "pushy" when it comes to my education.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
8. My father does not feel I'm doing my best in school.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
9. My father is pleased <u>only</u> if I get 100% on tests.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

10. My mother doesn't believe me when I tell her that "I have no homework."	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
11. School would be more pleasant if my mother was not as strict.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
12. My mother is never pleased with my marks.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
13. I'm afraid to go home to my mother with a failing mark.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
14. My mother expects too much of me.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
15. My mother pressures me too much with my homework.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
16. My mother is "pushy" when it comes to my education.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
17. My mother does not feel I'm doing my best in school.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
18. My mother is pleased <u>only</u> if I get 100% on tests.	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

## Appendix F: CDI

On this questionnaire are groups of statements. For each group, pick the one statement that best describes the way you feel. Circle the number (0,1, or 2) beside the statement you picked. Please read all the statements in each group before making your choice.

1.       0 I am sad once in a while.  
          1 I am sad many times.  
          2 I am sad all the time.
  
2.       0 Nothing will ever work out for me.  
          1 I am not sure things will work out for me.  
          2 Things will work out for me O.K.
  
3.       0 I do most things O.K.  
          1 I do many things wrong.  
          2 I do everything wrong.
  
4.       0 I have fun in many things.  
          1 I have fun in some things.  
          2 Nothing is fun at all.
  
5.       0 I am bad all the time.  
          1 I am bad many times.  
          2 I am bad once in a while.
  
6.       0 I think about bad things happening to me once in a while.  
          1 I worry that bad things will happen to me.  
          2 I am sure that terrible things will happen to me.
  
7.       0 I hate myself.  
          1 I do not like myself.  
          2 I like myself.
  
8.       0 All bad things are my fault.  
          1 Many bad things are my fault.  
          2 Bad things are not usually my fault.
  
9.       0 I do not think about killing myself.  
          1 I sometimes think about killing myself but I would not do it.  
          2 I want to kill myself.

10.       0 I feel like crying every day.  
          1 I feel like crying many days.  
          2 I feel like crying once in a while.
11.       0 Things bother me all the time.  
          1 Things bother me many times.  
          2 Things bother me once in a while.
12.       0 I like being with people  
          1 I do not like being with people many times.  
          2 I do not want to be with people at all.
13.       0 I cannot make up my mind about things.  
          1 It is hard to make up my mind about things.  
          2 I make up my mind about things easily.
14.       0 I look O.K.  
          1 There are bad things about my looks.  
          2 I look ugly.
15.       0 I have to push myself all the time to do my school work.  
          1 I have to push myself many times to do my school work.  
          2 Doing school work is not a big problem.
16.       0 I have trouble sleeping every night.  
          1 I have trouble sleeping many nights.  
          2 I sleep pretty well.
17.       0 I am tired once in a while.  
          1 I am tired many days.  
          2 I am tired all the time.
18.       0 Most days I do not feel like eating.  
          1 Many days I do not feel like eating.  
          2 I eat pretty well.
19.       0 I do not worry about aches and pains.  
          1 I worry about aches and pains many times.  
          2 I worry about aches and pains all the time.
20.       0 I do not feel alone.  
          1 I feel alone many times.  
          2 I feel alone all the time.

21. 0 I never have fun at school.  
1 I have fun at school only once in a while.  
2 I have fun at school many times.
22. 0 I have plenty of friends.  
1 I have some friends but I wish I had more.  
2 I do not have any friends.
23. 0 My school work is alright.  
1 My school work is not as good as before.  
2 I do very badly in subjects I used to be good in.
24. 0 I can never be as good as other kids.  
1 I can be as good as other kids if I want to.  
2 I am just as good as other kids.
25. 0 Nobody really loves me.  
1 I am not sure if anybody loves me.  
2 I am sure that somebody loves me.
26. 0 I usually do what I am told.  
1 I do not do what I am told most times.  
2 I never do what I am told.
27. 0 I get along with people.  
1 I get into fights many times.  
2 I get into fights all the time.

## Appendix G: RCMAS: What I Think and Feel

Directions: For each question, circle the word Yes if you think the sentence is true about you. Circle the word No if you think it is not true about you. Circle an answer for every sentence, even if it is hard to choose one that fits you. Do not circle both Yes and No for the same sentence.

- |  |     |    |
|--|-----|----|
| 1. I have trouble making up my mind.                         | Yes | No |
| 2. I get nervous when things do not go the right way for me. | Yes | No |
| 3. Others seem to do things easier than I can.               | Yes | No |
| 4. I like everyone I know.                                   | Yes | No |
| 5. Often I have trouble getting my breath.                   | Yes | No |
| 6. I worry a lot of the time.                                | Yes | No |
| 7. I am afraid of a lot of things.                           | Yes | No |
| 8. I am always kind.   | Yes | No |
| 9. I get mad easily.   | Yes | No |
| 10. I worry about what my parents will say to me.            | Yes | No |
| 11. I feel that others do not like the way I do things.      | Yes | No |
| 12. I always have good manners.                              | Yes | No |
| 13. It is hard for me to get to sleep at night.              | Yes | No |
| 14. I worry about what other people think about me.          | Yes | No |
| 15. I feel alone even when there are people with me.         | Yes | No |
| 16. I am always good.  | Yes | No |
| 17. Often I feel sick in my stomach.                         | Yes | No |
| 18. My feelings get hurt easily.                             | Yes | No |
| 19. My hands feel sweaty.                                    | Yes | No |
| 20. I am always nice to everyone.                            | Yes | No |

21. I am tired a lot.	Yes	No
22. I worry about what is going to happen.	Yes	No
23. Other children are happier than I.	Yes	No
24. I tell the truth every single time.	Yes	No
25. I have bad dreams.	Yes	No
26. My feelings get hurt easily when I am fussed at.	Yes	No
27. I feel someone will tell me I do things the wrong way.	Yes	No
28. I never get angry.	Yes	No
29. I wake up scared some of the time.	Yes	No
30. I worry when I go to bed at night.	Yes	No
31. It is hard for me to keep my mind on my schoolwork.	Yes	No
32. I never say things I shouldn't.	Yes	No
33. I wiggle in my seat a lot.	Yes	No
34. I am nervous.	Yes	No
35. A lot of people are against me.	Yes	No
36. I never lie.	Yes	No
37. I often worry about something bad happening to me.	Yes	No

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## Appendix H: Coding of Parenting Demographics

Education levels coded as

- 1 = elementary
- 2 = some high school
- 3 = high school graduate
- 4 = vocational school
- 5 = some college
- 6 = college graduate
- 7 = advanced degree

Occupation categories coded into categories from 1 to 20.

- 1 = teacher
- 2 = doctor
- 3 = lawyer
- 4 = laborer
- 5 = service worker (included military, janitors, drivers, restaurant workers)
- 6 = company employee
- 7 = management
- 8 = government employee
- 9 = self-employed
- 10 = unemployed
- 11 = engineer/architect
- 12 = journalist/writer
- 13 = researcher
- 14 = farmer/peasant
- 15 = local government official/volunteer
- 16 = film director
- 17 = business person
- 18 = legal justice worker
- 19 = retired
- 20 = don't know.

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