How Chinese Children's Filial Piety Beliefs Affect Their Parents' Life Satisfaction and Loneliness

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Abstract

Filial piety (or *xiao*) is a unique Chinese culture that affects older adults' life satisfaction and loneliness. Guided by the dual filial piety model and socioemotional selectivity theory, this study explores how adult children’s filial piety beliefs affect their parent’s life satisfaction and loneliness. A total of 350 pairs of parent-child data were collected through a parent-child pair design. Results show that emotional support provided by adult children and emotional support perceived by parents (i.e., the transmission of emotional support) fully mediated the relationship between children’s reciprocal filial piety belief and parents’ life satisfaction and loneliness, and partially mediated the relationship between children’s authoritarian filial piety belief and parents’ life satisfaction and loneliness. However, instrumental support provided by adult children and instrumental support perceived by parents (i.e., the transmission of instrumental support) had no such mediating roles in the relationship between adult children’s filial piety beliefs and parents’ life satisfaction and loneliness. This finding suggests that to improve parental well-being, adult Chinese children should cultivate their filial piety and pay close attention to their parents’ emotional needs.
**Keywords:** filial piety, life satisfaction, loneliness, instrumental support, emotional support

Aging is sweeping the world. In particular, China has the largest number of older adults and the fastest growth rate of the aging population in the world (Zhong, 2014). By 2050, it is estimated that the population aged 65 and older will number nearly 380 million in China (China Development Research Foundation, 2020). As such, factors affecting the subjective well-being of older adults have attracted the attention of scholars (e.g., Jiang et al., 2020; Nieboer & Cramm, 2018). Life satisfaction and loneliness are two indicators commonly used to evaluate the well-being of older adults. Life satisfaction is a subjective expression of quality of life (Fernández-Ballesteros et al., 2001). It is positively associated with mental health, quality of life, and well-being of older adults (Gana et al., 2014; Nakamura et al., 2021; Wiest et al., 2012). Loneliness is defined as a state of emotional distress and perceived social isolation (Gierveld & van Tilburg, 2010), which is negatively correlated with the well-being of older adults (Golden et al., 2009, Hsu, 2020). Therefore, enhancing life satisfaction and reducing loneliness in older adults have important practical significance in an aging society.

For older adults in China, filial piety (or xiao) is considered a unique factor affecting life satisfaction (L. Lu et al., 2006; Sun et al., 2019) and loneliness (Kim & Silverstein, 2018; Simon et al., 2014). Filial piety, born from traditional Chinese Confucian culture, represents an important virtue and responsibility in the parent-child
relationship (Ho, 1996) and shapes the structure and form of Chinese families (Queen et al., 2014). It prescribes how children should treat their parents. In the Chinese context of family interdependence, filial piety plays an essential role in Chinese social and psychological adaptation, including in terms of life satisfaction (W. Chen, 2014; Yeh et al., 2013), happiness (W. Chen et al., 2016), and family cohesion (Yeh & Bedford, 2004). Extensive research has shown that individuals' filial piety beliefs are strongly associated with their higher life satisfaction and lower loneliness (e.g., W. Chen et al., 2016; Sun et al., 2019).

However, previous studies have mainly focused on how respondents' filial piety beliefs affect their life satisfaction and loneliness (e.g., W. Chen, 2014; W. Chen et al., 2016; Sun et al., 2019); less attention has been paid to how children's filial piety beliefs contribute to their parents' successful aging (L. Lu et al., 2006). As the basic family support unit in China, adult children are the primary avenue from which parents acquire resources (N. Lu et al., 2017). Adult children often provide their parents with many kinds of social support, affecting their experience of aging (Andrews, 2018). Therefore, this study explores how adult children's filial piety beliefs affect the level to which they provide social support to their parents and how this social support is perceived by and affects their parents' life satisfaction and loneliness.

Dual Filial Piety, Life Satisfaction, and Loneliness
Though originating from traditional Chinese Confucian culture, filial piety is no longer a purely Chinese notion but rather a psychological concept that focuses on parent-child relations (Bedford & Yeh, 2021). Yeh and Bedford (2003) proposed the dual filial piety model (DFPM), comprised of reciprocal and authoritarian filial piety, suggesting that filial piety encompasses two distinct aspects that differ in connotation, nature, and operational function. Beliefs and behaviors about reciprocal filial piety are motivated by gratitude for parents' sacrifice and characterized as intimate, reciprocal, and natural, representing a genuine appreciation that children have toward the parents who nurtured them (Yeh & Bedford, 2003). Authoritarian filial piety takes the hierarchical ranking of authority and cultural norms as prototypes, accentuating children's respect for and obedience to their parents (Yeh & Bedford, 2003, 2004). Although there are differences between the two, there are also common aspects. Both reciprocal and authoritarian filial piety emphasize that adult children are expected to take care of their parents physically and emotionally to repay the labor and love their parents given when raising them (Yeh, 2003). Therefore, the more children agree with the values espoused by filial piety, the more they will do to meet the needs and expectations of their parents and ensure them a happy and high-quality life (Yeh & Bedford, 2003).

Previous studies have found that children's reciprocal filial piety belief helps to reduce conflicts with parents and maintain a harmonious parent-child relationship (X. Li
et al., 2014; Yeh & Bedford, 2004). Children's authoritarian filial piety belief is closely associated with their respect for and obedience to their parents, extensions of their effort to meet their parents' filial expectations (Bedford & Yeh, 2021). These studies may indicate that children's both sorts of filial piety could enhance their parents' life satisfaction and reduce their loneliness (W. Chen et al., 2016; Sun et al., 2016). A study using a parent-child pair design found that children with high filial piety beliefs predicted a high level of their parents' subjective well-being (L. Lu et al., 2006). Therefore, based on the DFPM, this study proposed Hypothesis 1: Two sorts of filial piety in adult children can positively predict parents' life satisfaction and negatively predict parents' loneliness.

The Role of Adult Children’s Social Support in Parents' Life Satisfaction and Loneliness

Social support refers to the supportive resources individuals obtain through a network of mutual assistance (Thoits, 2011). According to the socioemotional selectivity theory, social support networks decline normatively in later life (English & Carstensen, 2014). Due to their feelings regarding running out of time, older adults are inclined to selectively seek social support from intimate social partners and invest great resources in emotionally meaningful activities to maximize their well-being. Compared with other social members, adult children are the closest people to their parents and are essential sources of instrumental support, caregiving, and affective bonding (Andrews, 2018). Therefore,
social support from adult children has extensive influence over their parents' daily lives, loneliness, and quality of life (e.g., Huxhold et al., 2013; Queen et al., 2014).

Previous studies have found that perceived social support is associated with higher life satisfaction and lower loneliness in older adults (e.g., Cao & B. Lu, 2021; Y. Chen & Feeley, 2013; Wang, 2016). However, social support is a comprehensive concept that can be divided into instrumental and emotional support (Morelli et al., 2015). Instrumental support refers to tangible support, such as providing living expenses and housework; emotional support emphasizes satisfying one's emotional needs, including expressing comfort, listening to, and communicating with others (Ho et al., 2012; Ikels & Charlotte, 2004). Different types of social support may have different relationships with well-being (Morelli et al., 2015). Receiving instrumental support is related to a loss of autonomy and increasing need and dependence; as a result, it may decrease one's well-being (Reinhardt et al., 2006). Emotional support is associated with higher well-being (Merz & Huxhold, 2010). Studies even have shown that emotional support is more effective at reducing loneliness and increasing well-being than is instrumental support (Hombrados-Mendieta et al., 2013; Morelli et al., 2015). However, studies mentioned above mainly focused on how individuals' perceived instrumental and emotional support affected their well-being. It is still unclear whether adult children's instrumental and emotional support can equally affect their parents' life satisfaction and loneliness.

Adult Children's Filial Piety and Their Social Support to Parents
Can adult children's beliefs regarding reciprocal and authoritarian filial piety predict their instrumental and emotional support to parents? The answer is yes, but the results of various studies are inconsistent. Yeh et al. (2009) proposed that reciprocal filial piety emphasizes offspring's repayment of their parents' investment. Chinese adults with a greater sense of reciprocal filial piety tend to provide their parents with more instrumental and emotional support. Accordingly, these researchers found that reciprocal filial piety belief could predict higher frequencies at which children gave money to, did housework for, and satisfied the emotional concerns of their parents.

However, authoritarian filial piety entails children complying with their parents' wishes and obeying their parents' absolute authority (Yeh, 2003). Therefore, the authors found that authoritarian filial piety belief could only predict those behaviors with mandatory attributes, such as giving alimony and caring for sick parents (Yeh & Yang, 2009).

However, other researchers have suggested that the motivation for reciprocal filial piety arises from the deep emotional connection between parents and children. In contrast, the motivation for authoritarian filial piety comes from the social and moral endowment that children have a responsibility and obligation to take care of their parents (Ho, 2018; Wei & Zhong, 2015). Therefore, these authors found that children's reciprocal filial piety belief could predict higher emotional support to their parents, and authoritarian filial piety belief could predict higher financial or material support.
Although the above studies show inconsistent results regarding how children's filial piety beliefs affect social support to their parents, the core of filial piety requires children to prioritize their parents' needs and bear an obligation to care for them (Tsai, 1999). Therefore, we assumed that adult children's two sorts of filial piety beliefs could predict higher instrumental and emotional support to their parents.

The Influence of Filial Piety on Life Satisfaction and Loneliness via Social Support

According to the DFPM, adult children's filial piety beliefs can affect their filial behaviors, usually manifest in providing social support to their parents (Ho et al., 2012; Ikels & Charlotte, 2004). In addition, previous studies have found that parents' perceived social support plays a mediating role in influencing their perceived filial piety of children on their life satisfaction and loneliness (S. Cheng & Chan, 2006; Chong & S. Liu, 2016; Yeh, 2009).

How can children's social support affect their parent's life satisfaction and loneliness? First, as we mentioned above, it remains unclear whether children's social support could directly predict their parents' life satisfaction and loneliness. However, according to the main effect model, increasing social support could directly improve mental health (Fried & Tiegs, 1993). Therefore, children's social support may directly increase their parents' life satisfaction and decrease loneliness. Second, the DFPM indicates that filial piety is a psychological concept, emphasizing the operating mechanism of psychological functions between parents and children (Bedford & Yeh,
2021). It is possible that whether children's social support can predict their parents' well-being depends on whether their parents perceive the support. In other words, children's social support may affect their parents' life satisfaction and loneliness via the support the parents perceive.

**The Present Study**

Although previous studies have shown that filial piety beliefs predicted individuals' higher life satisfaction and lower loneliness, these studies still have two limitations. First, most studies are based on children's unilateral data (e.g., W. Chen et al., 2016; Sun et al., 2019) or parents' unilateral data (e.g., S. Cheng & Chan, 2006; Dong et al., 2014). Therefore, the result may produce a common method variance bias; the predictive variables and outcome variables come from the date of the same sample, making the degree of common variation of the two variables overestimated. Second, previous studies mostly explored the impact of children's filial piety on their well-being but did not extend to explore the impact of children's filial piety on their parents' life satisfaction and loneliness. This study believes that social support can be regarded as a bridge connecting these two parties.

Therefore, we propose the serial mediating roles of support provided by children and support perceived by parents in the relationship between children's filial piety beliefs and parents' life satisfaction and loneliness. We investigated adult children's filial piety beliefs and their father or mother's life satisfaction and loneliness through a
parent-child pair design. Notably, adult children rated their frequencies regarding items related to social support provided to their parents, whereas the parent evaluated their perceived frequency. We propose the following additional hypotheses:

**Hypothesis 2:** The instrumental support provided by children and instrumental support perceived by parents play serial mediating roles in the relationship between children's filial piety beliefs and parents' life satisfaction and loneliness.

**Hypothesis 3:** The emotional support provided by children and emotional support perceived by parents play serial mediating roles in the relationship between children's filial piety beliefs and parents' life satisfaction and loneliness.

**Method**

**Participants**

The participants were allowed to opt-out of the survey. This study did not elicit adverse physiological and psychological reactions but only measured their simple behavior responses. Therefore, the Ethics Committee of School of Psychology of Fujian Normal University waived the participants' need for written informed consent and approved our study. We employed college students to collect data during their summer vacation. Participants were recruited from seven cities in China, including Fuzhou, Putian, Taiyuan, Tongren, Xiamen, Yangquan, and Zhumadian. The college students first collected participant data using convenience sampling and then asked participants to take a paired questionnaire home to their father or mother (or one of their children) to
Filial Piety, Life Satisfaction, and Loneliness

complete. Participants were asked to take the adult child or parent who had already completed the questionnaire as the matched participant to complete their questionnaire. After the paired questionnaire was completed, they returned it to the students. Older adults who could not complete the questionnaire by themselves completed it under the guidance of college students or their children. A total of 430 paired questionnaires were collected. This study used the following criteria to screen paired effective questionnaires: (1) no contradictory answers (e.g., choosing 'widowed' on marital status but 'living with spouse and children' on living arrangement, or choosing 'living only with parents' by the child but 'living only with spouse' by the parent); (2) missing less than 20% of the total questions; (3) no obvious sign of answers being provided by others (e.g., child and parent give the same answers on the same scale); and (4) no obvious regular answers (e.g., choosing the same option for ten or more successive questions). Of the total, 80 paired questionnaires were excluded, making the effective rate as high as 81.4%.

The adult children sample had a mean age of 39.00 years ($SD = 7.56$; age range = 20–58 years); 52.9% were male, 82.3% were married, and 17.7% were widowed, divorced, or unmarried. Approximately 44.0% had an education level of junior high school, and 56.0% had an education level of senior high school or above; 67.4% had a monthly income of 5,000 yuan or less, and 32.0% earned more than 5,000 yuan per month.
The parent sample had a mean age of 67.62 years ($SD = 7.47$; age range = 44–91 years); 44.6% were male, 78.9% were married, and 19.7% were widowed or divorced. Approximately 28.3% had an education level of primary school or below, 32.9% had an education level of junior high school, and 38.9% had an education level of senior high school or above; 46.0% had a monthly income of 5,000 yuan or less, and 54.0% earned more than 5,000 yuan per month.

[Table 1 near here]

**Measures**

*Filial Piety*

The filial piety of the adult children was measured by a 16-item Dual Filial Piety Scale (DFPS; Yeh & Bedford, 2003). The DFPS is a 6-point Likert-type scale (1 = extremely unimportant, 6 = extremely important). It includes eight items for each domain: reciprocal filial piety (e.g., "Supporting parents makes their lives more comfortable") and authoritarian filial piety (e.g., "No matter what my parent asks, I do it immediately"). The score for each subscale ranged from 8 to 48, with higher scores indicating stronger filial piety beliefs. In this study, the Cronbach's alpha coefficients for reciprocal and authoritarian filial piety were .844 and .772, respectively.

*Support provided by adult children and support perceived by parents*

Two self-designed questionnaires measured the intergenerational support between children and parents: the Support Provided by Adult Children scale and Support...
Perceived by Parents scale. The reliability and validity analysis and specific questionnaire entries can be found in Supporting Information 1.

The Support Provided by Adult Children scale consisted of 10 items, of which six measured instrumental support and four measured emotional support. Adult children were asked to rate the frequency of the support they provided to their parents. The scale was a 5-point Likert-type scale (0 = none and 4 = always). The higher the score, the more social support they provided. In this study, the Cronbach’s alpha coefficients for the Support Provided by Adult Children Scale were .795 and .831, respectively.

The Support Perceived by Parents scale also consisted of 10 items, of which six measured instrumental support and four measured emotional support. Each item of this scale corresponded to the Support Provided by Adult Children scale. For example, adult children were asked to rate the frequency at which they ‘do housework’ for their parents, while parents were asked to rate how often the child would ‘do housework’ for them. The scale was a 5-point Likert-type scale (0 = none and 4 = always). The higher the score, the more social support they perceived. In this study, the Cronbach's alpha coefficients for the Support Perceived by Parents Scale were .776 and .872, respectively.

Life satisfaction

The 5-item Satisfaction with Life Scale assessed parents’ life satisfaction (SWLS; Diener et al., 1985). Participants were asked to rate their level of agreement with each
item, for instance, "In most ways, my life is close to my ideal." The SWLS is scored on a 7-point Likert-type scale (1 = strongly disagree and 7 = strongly agree). A higher score indicates higher life satisfaction. In this study, Cronbach's alpha coefficient for the SWLS was .871.

**Loneliness**

The 3-item UCLA Loneliness Scale was compiled by Hughes et al. (2004) and used here to measure parental loneliness. This scale contained only three items: (1) How often do you feel that you lack companionship? (2) How often do you feel left out? And (3) How often do you feel isolated from others? Participants responded regarding the frequency of the above experiences. The options included: (1) Hardly ever, (2) Some of the time, and (3) Often. Loneliness scores ranged between 3 and 9. The higher the score, the stronger was the feelings of loneliness. In this study, Cronbach's alpha coefficient for the scale was .807.

**Data Analysis**

SPSS 22.0 was used to preliminarily sort the data and conduct a correlation analysis and reliability test. Structural equation modeling was adopted using M-plus 8.0 to test the hypothesized model. The mediation effect was tested in a two-step procedure (Anderson & Gerbing, 1988). First, the measurement model was tested through CFA to assess the goodness-of-fit represented by the explicit indicators. Then, as a second step, the structural equation model was examined using Amos 22.0 to evaluate whether the
research hypotheses could be supported. Diverse indices recommended by other researchers (Markus, 2012) were calculated to evaluate the reliability of fit of the structural equation model, including the chi-squared statistic ($\chi^2$), root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker–Lewis index (TLI, also known as the non-normed fit index). CFI and TLI values greater than .900 and an RMSEA value lesser than .080 were considered an indications of an acceptable fit (Kline, 1998). Finally, a bootstrap test was used to repeat the sampling 2,000 times to perform an intermediate effect test and estimation of the confidence interval. If the 95% confidence interval did not contain zero, the indirect effect was considered significant (MacKinnon et al., 2004).

**Results**

**Descriptive statistics and correlation analysis**

The descriptive statistics and correlations for the variables are presented in Table 2. Adult children's higher reciprocal and authoritarian filial piety belief scores correlated with more instrumental and emotional support provided by adult children, more instrumental and emotional support perceived by parents, and parents' higher life satisfaction. Both forms of filial piety beliefs were significantly related to parents' lower loneliness. In addition, adult children's instrumental and emotional support could predict parents perceived more instrumental and emotional support. However, rather than their instrumental support, emotional support provided by adult children was associated with
parents' higher life satisfaction and lower loneliness. Instrumental and emotional support perceived by parents was associated with their higher life satisfaction and lower loneliness.

[Table 2 near here]

**Total effects of children’s two sorts of filial piety on parents’ life satisfaction and loneliness**

First, the direct path coefficient from the predictor (i.e., reciprocal or authoritarian filial piety) to the criterion (i.e., life satisfaction or loneliness) without mediators was tested. This model fit the data well, $\chi^2/df = 1.538$, CFI = .978, TLI = .994, RMSEA = .039, SRMR = .033. The results indicate that the total effects of reciprocal and authoritarian filial piety on life satisfaction ($\beta = .144, p = .007$ for reciprocal filial piety and $\beta = .190, p < .001$ for authoritarian filial piety) and loneliness ($\beta = -.137, p = .010$ for reciprocal filial piety and $\beta = -.203, p < .001$ for authoritarian filial piety) were significant.

**Serial mediating effects of support provided by adult children and support perceived by parents**

Multiple serial mediation models were built to test the serial mediating effects of support provided by adult children and support perceived by parents in the relationship between adult children's filial piety and parents' life satisfaction/loneliness (see Figure 1). The demographic variables, including gender, age, marital status, education level,
and monthly income, of both children and their parents were controlled. The model fit well, $\chi^2/df = 1.882$, CFI = .936, TLI = .907, RMSEA = .051, SRMR = .063. The results showed that the direct effect of authoritarian filial piety was significant on both life satisfaction ($\beta = .125, p = .025$) and loneliness ($\beta = -.142, p = .01$), but the direct effect of reciprocal filial piety was insignificant on life satisfaction ($\beta = .029, p = .606$) and loneliness ($\beta = -.010, p = .862$). However, adult children's filial piety affected parents' life satisfaction and loneliness only via the serial mediating effects of emotional support provided by adult children and emotional support perceived by parents.

Next, a bootstrapping procedure was adopted to examine the mediating effects (see Table 3). The results indicated that the effects of emotional support provided by adult children and emotional support perceived by parents both fully mediated the relationship between adult children's reciprocal filial piety and parents' life satisfaction ($\beta = .045, 95\% \text{ CI}: .020, .080$) and the relationship between adult children's reciprocal filial piety and parents' loneliness ($\beta = -.048, 95\% \text{ CI}: -.080, -.023$). In addition, emotional support provided by adult children and emotional support perceived by parents partially mediated the relationship between adult children’s authoritarian filial piety and parents’ life satisfaction ($\beta = .030, 95\% \text{ CI}: .012, .055$) and the relationship between adult children’s authoritarian filial piety and parents’ loneliness ($\beta = -.032, 95\% \text{ CI}: -.055, -.015$).
Discussion

This study explored how children's filial piety beliefs influenced their parents' life satisfaction and loneliness through a parent-child pair design. The results show that children's reciprocal and authoritarian filial piety beliefs predicted their parents' higher life satisfaction and lower loneliness. However, only authoritarian filial piety significantly predicted their parents' higher life satisfaction and lower loneliness in the mediation model. (2) Both the emotional support provided by children and emotional support perceived by parents fully mediated the relationship between children's reciprocal filial piety belief and parents' life satisfaction and loneliness, and partially mediated the relationship between children's authoritarian filial piety belief and parents' life satisfaction and loneliness. (3) The mediating roles of instrumental support provided by children and instrumental support perceived by parents did not influence children's filial piety beliefs on their parents' life satisfaction and loneliness.

In the mediation model, children's authoritarian (but not their reciprocal) filial piety belief directly predicted their parents' higher life satisfaction and less loneliness, partially supporting H1. This finding provides further empirical evidence for the DFPM in that different sorts of filial piety had different operational functions. A previous study has found that the concept of filial piety changes with the change of society (Q. Li, 2020). Different generations have different understandings of children's duty to their...
parents. Authoritarian (but not reciprocal) filial piety is closer to the filial piety expectation of older adults (S. Cheng & Chan, 2006; L. Liu et al., 2009). This kind of expectation is consistent with traditional Chinese culture's idea that children must absolutely obey their parents (especially their father). Moreover, this expectation is also reflected in the upbringing of children by the older generation. Studies showed that a higher proportion of Chinese parents wished their children to abide by their opinions and obey their authority (Supple et al., 2009; Zhang et al., 2017). Therefore, children's authoritarian filial piety, but not reciprocal filial piety, predicted their parents higher life satisfaction and lower loneliness. This result also explains why transmission of emotional support (i.e., children provide their parents with emotional support while parents perceive the emotional support) fully mediated the relationship between children's reciprocal filial piety and parents' life satisfaction and loneliness, but only partially mediated the relationship between children's authoritarian filial piety and parents' life satisfaction and loneliness.

This study found that children with higher reciprocal filial piety provided their parents with more instrumental and emotional support. In contrast, children’s authoritarian filial piety only predicted providing their parents with more emotional but not instrumental support. In previous studies, researchers investigated three kinds of social support: giving money/financial support, doing housework/providing daily care, and caring for emotional concerns (Ho, 2018; Hao & Yu, 2015; Wei & Zhong, 2015;
Filial Piety, Life Satisfaction, and Loneliness

Yeh, 2009). They consistently found that children's reciprocal filial piety predicted their emotional concern for their parents, but not their authoritarian filial piety. However, 'giving money/financial support' and 'doing housework/providing daily care' offered conflicting results. Among these four studies, only one study found that children's reciprocal filial piety predicted higher frequencies of 'giving money/financial support' and 'doing housework/providing daily care' (Yeh, 2009). The other three showed that children's authoritarian filial piety predicted only a higher frequency of 'giving money/financial support.' Unlike these studies, the present work used the mean values of four kinds of instrumental support and six kinds of emotional support as indicators. The results obtained by using these more comprehensive indicators were relatively stable. In addition, the data used in the above four studies were obtained from surveys conducted in 2006. They may not reflect the relationship between filial piety and social support provided by young people in the present era. Nevertheless, we cannot assert that our results are the most realistic among the entirety of the research on this topic. Further work is needed to explore the influence of children's different sorts of filial piety beliefs on the instrumental and emotional support provided to their parents.

In addition, the present research found that children's instrumental and emotional support were unable to predict their parents' life satisfaction and loneliness directly. No previous research has explored whether social support as rated by adult children could affect life satisfaction and loneliness as evaluated by parents. Previous studies usually
investigated parents’ perceptions of the social support received from their children (S. Cheng & Chan, 2006; Chong & S. Liu, 2016; Ruiz, 2007). These studies found that parents who perceived higher social support reported higher life satisfaction and lower loneliness. These results support our idea that parents must perceive their children’s social support in order to affect their life satisfaction and loneliness.

Most importantly, this study found that children's filial piety beliefs affected their parents' life satisfaction via the mediating role of transmission of emotional support, but not via the mediating role of transmission of instrumental support. The transmission of emotional support fully mediated the relationship between reciprocal filial piety and parents' life satisfaction and loneliness, but only partially mediated the relationship between authoritarian filial piety and parents' life satisfaction and loneliness (for an explanation of this full vs. partial mediation effect, see the second paragraph in the Discussion section). These results support H2 but not H3 and are consistent with the prediction of socioemotional selectivity theory, which states that as people get older, seeking emotional satisfaction becomes an increasingly primary goal. Individuals tend to focus on relationships that feel intimate and satisfying and invest great resources in emotionally meaningful activities (Carstensen, 2006). Children expressing emotional concerns to their parents meet their parents' emotional needs. This notion is consistent with previous studies showing that emotional support is more important than instrumental support to the well-being of older adults (Hombrados-Mendieta et al.,
Filial Piety, Life Satisfaction, and Loneliness

2013; Merz & Huxhold, 2010). In addition, a study has found that whether instrumental support can affect the subjective well-being of older adults depends on if the support provider integrates emotion into that support (Morelli et al., 2015). Therefore, the transmission of emotional rather than instrumental support mediated the influence of children's filial piety beliefs on parents' life satisfaction and loneliness.

This study expands the research in this field that it regards social support as a bridge linking children's filial piety and parents’ life satisfaction and loneliness. It reveals that children's filial piety beliefs affect their parents' life satisfaction or loneliness via the mediating role of transmission of emotional support, but not instrumental support, further confirming the applicability of DFPM and socioemotional selectivity theory. At the same time, this study argues that unilateral investigation on a single sample may obtain biased results. We suggest that the paired-sample design can be used to eliminate this bias in future studies.

This study also has practical implications for improving older adults’ well-being. Our findings suggest that we should attach importance to cultivating children’s filial piety, whether reciprocal or authoritarian filial piety, such as carrying out a variety of filial piety propaganda and practical activities in schools and communities. However, it may be inappropriate for us to appeal for adult children to satisfy their parents unconditionally for authoritarian filial piety because it runs counter to promoting universal values of independence and equal personality (Q. Li & Xu, 2011). Therefore,
it is advocated that we should call on people to appreciate authoritarian filial piety and to transform it into "love and respect". In addition, as opposed to instrumental support, what parents value more is their children's emotional support, such as their respect and concern. Therefore, we suggest that adult children should notice their parents’ emotional needs when practicing filial piety.

**Limitations**

Several limitations on this study should be considered. First, our results do not support causal relationships among filial piety, the transmission of social support, and life satisfaction and loneliness due to the cross-sectional design. Further research could eliminate this limitation by adopting a panel study design over a more extended period to replicate the findings.

Second, social support is an interactive process (Chu et al., 2010). Previous studies have shown that parents providing social support to their adult children may also improve their life satisfaction (X. Chen & Silverstein, 2000; Kim & Kim, 2003). It may be helpful to understand how children's filial piety beliefs affect their parents' life satisfaction and loneliness by investigating the interaction of social support between children and parents.

Third, previous studies have documented that intergenerational support is affected by support provider’s age (e.g., Bucx et al., 2012; Y. Cheng et al., 2015; Silverstein et al., 2002). Compared to younger age, adult children with older age provided more social
support to their parents. However, in the present study, the sample size was relatively small \((n = 350)\), and adult children’s age span was large \((20 – 58)\). It is unable for us to analyze the age effect of social support and its impact on our model, reducing the validity of the research results. Future research may consider replicating the results of this study by expanding the sample size of different age groups.

Finally, the respondents in this study are from seven cities in the Chinese mainland. These cities may have different politics, economies, cultures, and environments. However, the sample size of this research is relatively small. It is impossible for us to analyze the differences in filial piety and its influence among people in different regions. Nevertheless, we are cautious that there may not be differences in filial piety in different regions. Filial piety is often regarded as the essence of "Asian" values. Other countries and regions in Asia, such as Japan, Korea, Hong Kong, Taiwan, and Singapore, also emphasize the Confucian virtue of filial piety (Ikels, 2004). In addition, researchers have also examined filial norms in Europe and the United States (Lowenstein & Daatland, 2006; Rossi & Rossi, 1990; Seelbach & Sauer, 1977). They found that some attributes of these norms overlapped with filial piety in the Chinese senses (Dai & Dimond, 1998). Therefore, filial piety is a cultural consensus, especially in China, people in different regions may have similar views on filial piety. If future studies are interested in the regional difference of filial piety, they should expand the sample size and select several representative regions for further investigation.
Conclusion

This study explores how children's filial piety affects their parents' life satisfaction and loneliness. The primary contribution of this research is its examination of the transmission of instrumental and emotional support through a parent-child pair design. This study bridges the DFPM and socioemotional selectivity theory and clarifies how children's filial piety affects parents’ well-being. Children with higher filial piety provide their parents with more emotional support, which is then perceived by their parents and eventually improves their life satisfaction and reduces their loneliness. This study suggests that adult children should cultivate their filial piety beliefs and pay close attention to their parents' emotional needs to improve parents' well-being.

Disclosure of Conflict of Interest

The authors declare no conflict of interest.

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Filial Piety, Life Satisfaction, and Loneliness


Filial Piety, Life Satisfaction, and Loneliness

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Table 1
Sociodemographic information for participants

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adult children</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>185 (52.9%)</td>
<td>156 (44.6%)</td>
</tr>
<tr>
<td>Female</td>
<td>162 (46.3%)</td>
<td>193 (55.1%)</td>
</tr>
<tr>
<td>Missing</td>
<td>3 (0.9%)</td>
<td>1 (0.3%)</td>
</tr>
<tr>
<td>Age ($M \pm SD$)</td>
<td>39.00 $\pm$ 7.56</td>
<td>67.62 $\pm$ 7.47</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>288 (82.3%)</td>
<td>276 (78.9%)</td>
</tr>
<tr>
<td>Others</td>
<td>62 (17.7%)</td>
<td>69 (19.7%)</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>5 (1.4%)</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 6 years</td>
<td>0</td>
<td>99 (28.3%)</td>
</tr>
<tr>
<td>6-9 years</td>
<td>154 (44.0%)</td>
<td>115 (32.9%)</td>
</tr>
<tr>
<td>&gt; 9 years</td>
<td>196 (56.0%)</td>
<td>136 (38.9%)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (0.6%)</td>
<td>0</td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;=5000</td>
<td>236 (67.4%)</td>
<td>161 (46.0%)</td>
</tr>
<tr>
<td>&gt;5000</td>
<td>112 (32.0%)</td>
<td>189 (54.0%)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (0.6%)</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: ‘others’ for adult children includes widowed, divorced, or unmarried, but for parents, it includes widowed or divorced.

Table 2
Means, standard deviations, and correlations of variables ($N = 350$)

<table>
<thead>
<tr>
<th></th>
<th>RFP</th>
<th>AFP</th>
<th>ISPAC</th>
<th>ESPAC</th>
<th>ISPP</th>
<th>ESPP</th>
<th>Life satisfaction</th>
<th>Loneliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFP</td>
<td>.332***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ISPAC</td>
<td>.338***</td>
<td>.189***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESPAC</td>
<td>.478***</td>
<td>.395***</td>
<td>.468***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISPP</td>
<td>.288***</td>
<td>.135*</td>
<td>.565***</td>
<td>.255***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESPP</td>
<td>.324***</td>
<td>.256***</td>
<td>.222***</td>
<td>.505***</td>
<td>.462***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>.144**</td>
<td>.190***</td>
<td>.090</td>
<td>.122*</td>
<td>.178***</td>
<td>.251***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.137**</td>
<td>-.203***</td>
<td>-.088</td>
<td>-.214***</td>
<td>-.168**</td>
<td>-.266***</td>
<td>-.347***</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>8-48</td>
<td>8-48</td>
<td>0-4</td>
<td>0-4</td>
<td>0-4</td>
<td>0-4</td>
<td>1-7</td>
<td>3-9</td>
</tr>
<tr>
<td>SD</td>
<td>4.544</td>
<td>6.640</td>
<td>.788</td>
<td>.657</td>
<td>.846</td>
<td>.736</td>
<td>1.209</td>
<td>1.527</td>
</tr>
</tbody>
</table>

Note: RFP = reciprocal filial piety of adult children, AFP = authoritarian filial piety of adult children, ISPAC = instrumental support provided by adult children, ESPAC = emotional support provided by adult children, ISPP = instrumental support perceived by parents, ESPP = emotional support perceived by parents; *$p < .05$; **$p \leq .01$; ***$p \leq .001$. 
Table 3

*Indirect effect and 95% confidence intervals for model*

<table>
<thead>
<tr>
<th>Model pathways</th>
<th>β</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>RFP → ESPAC → ESPP → life satisfaction</td>
<td>0.045</td>
<td>0.02</td>
</tr>
<tr>
<td>RFP → ESPAC → ESPP → loneliness</td>
<td>-0.048</td>
<td>-0.080</td>
</tr>
<tr>
<td>AFP → ESPAC → ESPP → life satisfaction</td>
<td>0.030</td>
<td>0.012</td>
</tr>
<tr>
<td>AFP → ESPAC → ESPP → loneliness</td>
<td>-0.032</td>
<td>-0.055</td>
</tr>
</tbody>
</table>

Note: RFP = reciprocal filial piety of adult children, AFP = authoritarian filial piety of adult children, ISPAC = instrumental support provided by adult children, ESPAC = emotional support provided by adult children, ISPP = instrumental support perceived by parents, ESPP = emotional support perceived by parents.

Figure 1

*The serial mediating effects of the transmission of social support between adult children’s reciprocal filial piety and parents’ life satisfaction/loneliness*

Note: RFP = reciprocal filial piety of adult children, AFP = authoritarian filial piety of adult children, ISPAC = instrumental support provided by adult children, ESPAC = emotional support provided by adult children, ISPP = instrumental support perceived by parents, ESPP = emotional support perceived by parents; *p < .05; **p ≤ .01; ***p ≤ .001.