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DEPRESSION AND AGGRESSION IN CHINESE MIGRANT ADOLESCENTS: THE  
MODERATING ROLE OF FAMILY AND PEER SUPPORT

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DEPRESSION AND AGGRESSION IN CHINESE MIGRANT ADOLESCENTS: THE  
MODERATING ROLE OF FAMILY AND PEER SUPPORT

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## Abstract

The goal of this study was to examine the relationship between depression and aggression among Chinese migrant adolescents. The moderating roles of family and peer support were also tested separately. Participants were 6,970 4<sup>th</sup> to 9<sup>th</sup> grade migrant adolescents in Beijing, China.

Depression, aggression, family support, and peer support were assessed by a set of self-report questionnaires. There was a positive association between depression and aggression. Although family support was negatively associated with aggression, the interaction between family support and depression was not significant. Peer support moderated the association between depression and aggression, in which high perceived peer support was linked to a stronger relationship between depression and aggression. These results indicated co-occurrence of depression and aggression, as well as the unique role of peer support in the impact of migrant adolescents' mental health and problematic behaviors. Future directions are also discussed.

*Keywords:* depression, aggression, migrant adolescents, family support, peer support, moderation

# **Depression and Aggression in Chinese Migrant Adolescents: The Moderating Role of Family and Peer Support**

## **Introduction**

Housing stability has been known to play an essential role in healthy child development (e.g., Leventhal & Newman, 2010; Shonkoff, 2010). A large body of evidence has already demonstrated the negative effects of housing mobility for children and adolescents, such as poor emotional and behavioral adjustment, social maladjustment, and worse academic performance (e.g., Jelleyman & Spencer, 2008; Fowler et al., 2015). Based on the ecobiodevelopmental model (Fowler et al., 2015), the causes and consequences of housing transitions are usually constituted by interactions between internal and external factors of the family. Due to the poor psychological outcomes caused by housing instability, experts have also articulated strategies for reducing housing instability at the family, institution, and society levels. However, the major of the research related to housing mobility has been conducted in the United States. Less is known about the influence of housing transitions on children in different cultures.

Chinese migrant adolescents are one of the biggest populations in the world to experience recent housing instability, and they have typically moved from very rural areas to large urban communities. They have also been reported to have more aggressive behaviors and higher levels of depression than non-migrant adolescents (e.g., Hu et al., 2018). At the same time, Wolff and Ollensick (2006) proposed that aggression is an external expression of depression among adolescents. Thus, the main purpose of this study was to examine the association between depression and aggression among Chinese migrant adolescents, and whether the family and school factors - family and peer support - could moderate this relationship or not.

## **Migrant Adolescents**

In 1978, the Chinese government introduced a comprehensive economic reform policy with the purpose of promoting economic development. Along with the extension of this policy and expansion of urbanization in China, a large number of rural residents relocated from their home regions to cities for better job opportunities, and many of them brought their families, especially children, with them (Chen & Chen, 2010). This enormous rural-to-urban family mobility caused the existence of migrant children (Yuan et al., 2013). According to the 5<sup>th</sup> Chinese National Census, migrant children in China were defined as “youth under 18 years of age who have lived in a town/sub-district for more than half a year and whose household register is in another town/sub-district” (Zhang & Zhao, 2003). In recent years, there has been a rapid increase in the number of migrant children in China. In 2010, there were 35.81 million migrant children in China, and in Beijing, the capital city of China, migrants accounted for 35.9% of the total population, including 4 million migrant children (China State Statistics Bureau, 2011).

With the migration to the city, migrant children and their families are facing three main types of challenges: institutional exclusion, economic exclusion, and social exclusion (Luan, Lu, Tong, & Lv, 2013). Due to the Chinese household registration policies, many of the migrant children are only able to enroll in schools specifically for migrant children (Chen & Feng, 2013). This type of school is usually constituted by migrants and located in migrant communities within urban areas (Chen, Wang, & Wang, 2009). Compared with local public schools, schools for migrant children usually lack funding, which is associated with lower quality facilities and inadequate teachers (Li et al., 2010). Other migrant children enroll in the public schools as transient students because of the absence of local urban household registration. Although the public schools have more qualified faculty, better resources, and more funding from local

government, migrant children study together with local urban peers and have more contact with locals (Li et al., 2010), which relates to their economic and social exclusion. Migrant parents are typically poorly educated and engage in low-paying and low-skilled jobs (Ying et al., 2019). Moreover, since their household registers are recorded in their home regions, migrant families are usually not covered by social security services in their local city of residence, so they have no access to medical care, work-related injury insurance, or the welfare system (Fang, Sun, Yuen, 2016). Consequently, compared with local citizens, migrant families are facing higher economic pressures and usually qualify as low in socioeconomic status (Wang & Mesman; 2015). Finally, a growing body of research has demonstrated that migrant children are experiencing discrimination by peers due to their rural status and low family economic status (Shen, 2009), and peer rejection may give rise to children's antisocial behaviors (Jia & Liu, 2017).

### **Housing Mobility**

Housing mobility is one of the most important characteristics of migrant children. The home environment has been considered a primary environmental context in children's well-being for a long time (Coley, Lynch, & Melissa, 2015). A safe and stable home has been demonstrated to facilitate healthy child development in emotion, behavior, cognition, and socialization (Leventhal & Newman, 2010), and housing mobility usually links to poor adjustment among children and adolescents (Fowler et al., 2015). Previous evidence has already noted that both immediately following housing migration and over time, youth who experienced frequent moves have more emotional and behavior problems, as well as social maladjustment (Jelleyman & Spencer, 2008; Metzger, Fowler, Anderson, & Lindsay, 2015). Housing mobility also links to poor academic performance and a high probability of dropout (Cutuli et al., 2013; Luan, Lu, Tong, & Lv, 2013). The loss of familiar physical environment and social support networks, as



well as the decrease in parents' well-being and parenting quality, all contribute to the negative influence of housing mobility on developmental outcomes (Coley, Lynch, & Melissa, 2015).

According to the ecological systems theory (Bronfenbrenner & Evans, 2000), the ecobiodevelopmental model (Fowler et al., 2015) demonstrates the essential role of housing stability in child health. This model proposes that several concentric systems interact with each other and influence child development over time (Figure 1). Based on the model, housing stability is included in the exosystem process which promotes the relationship within and between contexts of development. The stable exosystem facilitates adequate interactions between parents and children in the microsystem of the family, and also provides stable social networks in the community within the exosystem (Shonkoff, 2010). On the other hand, the macrosystem processes, constructed by policies, economic issues, and job opportunities, contribute to housing stability (Siegler, Deloache, & Nancy Eisenberg, 2011). Overall, a consistent and stable positive relationship between child and family, as well as child and community, can protect children from many developmental challenges (Shonkoff & Phillips, 2000). The ecobiodevelopmental model of housing stability emphasizes the risk of family migration in the disruption of these relationships and exploration in adverse circumstances, and this model also proposes the leading role of family environment as a microsystem affecting children's emotional and behavioral development (Fowler et al., 2015).

The development of Chinese migrant adolescents, as a representative example, fits the ecobiodevelopmental model perfectly. The migration of this population was undertaken against the background of government policies meant to spur economic development, which are the factors at the level of the macrosystem. Institutional exclusion, economic exclusion, and social exclusion all happen in the exosystem, and it is clear that housing mobility leads to a series of

changes in the child's microsystem including poorer educational opportunities, instability in families, and economic stress. Based on these contextual factors, Chinese migrant children have been reported to show higher levels of depression, anxiety, and loneliness, as well as more behavioral problems, worse academic performance, and poor peer relationships (e.g., Jiang & Ngai, 2020; Luan, Lu, Tong, & Lv, 2013). With the increasing attention to Chinese migrant children, this population has also been qualified as a high-risk group in health development (Jia & Liu, 2017). Understanding the risk and buffering factors associated with migration may help government and educators develop policies and programs to improve the well-being of migrant children.

### **Depression and Aggression**

According to the 5<sup>th</sup> edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013), depression has been defined as “a period of at least two weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities, and had a majority of specified symptoms, such as problems with sleep, eating, energy, concentration, or self-worth.” A recent study conducted in China showed that compared with both left-behind children and general children population, the prevalence of depression was highest among migrant children (Guo et al., 2015; Rao et al., 2019). Meanwhile, Chinese migrant children have also been reported to have more delinquent behaviors, including attacking others and being perpetrators of aggression or violence, than rural children without parental migration (Luo, Tong, & Cheung, 2018). Aggression among adolescents is often studied in terms of its forms (e.g., verbal, physical, or relational). Given the more frequent use of physical violence among migrant children, this study focuses on physical aggression rather than relational

aggression, in which physical aggression has been defined as overt physical behaviors, such as hitting, kicking, and punching (Ojanen & Nostrand, 2014).

Previous literature has indicated that among Chinese migrant adolescents, depression is one of the most common psychological disorders, and aggression is one of the most common behavioral problems (Jiang et al., 2019). In both Eastern and Western cultures, the co-occurrence of aggression and depression has been robustly demonstrated (e.g., Chen, Huang, Wang, & Chang, 2012; Harmon et al., 2019). Adolescents with psychological disorders have been found to have more aggressive behaviors (Piko & Pinczes, 2014), and aggressive adolescents also have reported more internalizing problems (Mercer & DeRosier, 2008). The co-occurrence of depression and aggression is associated with poorer social adjustment and increased future psychological diagnoses compared to having either of the conditions alone (Keiley et al., 2003).

Researchers have argued that the relationship between depression and aggression is proposed in three models. The *acting out* model advocates that aggressive behavior is an outcome of depression (Carlson & Cantwell, 1980). Several longitudinal studies have supported this model by showing that the presence of depression precedes both the presence of aggression and the increase of aggression (Capaldi & Stoolmiller, 1999; & Kofler et al., 2011). The sensitivity and irritability of depressed adolescents may stimulate delinquent behaviors, such as aggression (Barnes, Howell, Thurston, & Cohen, 2017). On the contrary, the *failure model* suggests that social responses, such as rejection, from others in response to an adolescent's aggressive behaviors contribute to the adolescents' vulnerability to depression (Capaldi, 1991). In other words, aggression is a cause of depression, through its impairment of other social relationships. This model is also consistent with several findings that aggression elicits problematic relationships, which links to the feelings of depression (Blain-Arcaro &

Vaillancourt, 2016; Chen, Huang, Wang, & Chang, 2012). Finally, the *reciprocal model* emphasizes that there is a reciprocal relationship between aggression and depression (e.g., Beyers & Loeber, 2003; Measelle, Stice, & Hogansen, 2006). There is also empirical evidence that behavioral problems predicted the increase of depressive symptoms, and the initial level of depression predicted continued aggression over time (e.g., Loeber & Keenan, 1994; Measelle, Stice, & Hogansen, 2006).

The ecobiodevelopmental model has emphasized the negative influence of housing mobility in the development of healthy relationships, which indicates that migrant adolescents may have a higher risk of experiencing problematic peer relationships (Wang & Liu, 2019; Ye et al., 2016). The interpersonal theory of depression also proposes that depression may contribute to unhealthy relationship processes, including the adoption of antisocial behaviors, which in turn may aggravate the feelings of depression (Coyne, 1976). Secondly, based on the family stress model, economic pressure could influence children's well-being directly or indirectly (Masarik & Conger; 2017), which indicated migrant adolescent are at risk of both depression and aggressive behaviors due to their low SES. Lastly, it has been well documented that social inequality led by migration, such as peer discrimination and school arrangement, is related to adolescents' psychological adjustment including depression (Chen et al., 2014). Thus, we hypothesized that there would be a positive association between depressive symptoms and aggressive behaviors among Chinese migrant adolescents, which means a high level of depression would predict more frequently use of aggressive behaviors.

*H1: Among Chinese migrant adolescents, there is a positive association between depressive symptoms and aggressive behaviors.*

## **Social Support**

Social support, including support from parents, classmates, and teachers, has been defined as the perception of supportive actions from individuals in one's social network. It has been known as a coping mechanism to enhance individual's functioning and buffer adverse situations (Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994; Jenkins & Demaray, 2012). The benefits of social support in health development have been widely reported. A recent meta-analysis indicated that having social support is negatively associated with substance use, bullying victimization, and internalizing problems, such as depression, anxiety, psychological distress, and emotional problems (Heerde & Hemphill, 2018). Based on the risk and resilience framework, social support can protect youth at risk for maladjustment (Zimmerman et al., 2013). The relationship between peer victimization and mental health problems has been found to be buffered by social support (Stadler et al., 2010), and there are also several studies confirming the moderating role of social support in the relationship between discrimination and mental health among Chinese migrant children (e.g., Sun, Chen, & Chan, 2016; Wang et al., 2015).

Both family support and peer support have been proposed as factors that promote resilience to protect adolescents from risks. A longitudinal study focused on Latinx adolescents demonstrated that a low level of support from parents and friends strengthened the positive association between racial discrimination and aggressive behaviors, and high levels of family and peer support weakened this association (Wright & Wachs, 2019). Similar results have also been provided among African American women (Seawell, Cutrona & Russell, 2014). It has also been found among Chinese rural-to-urban migrant children that resilience, including support from family and peers, mitigated the impact of peer victimization on depressive symptoms (Ye et al., 2016). Based on the particular situation of migrant children, migrant parents and their children share the same migrant and economic status, but the peers of migrant adolescent may

come from diverse backgrounds. Thus, family support and peer support are examined separately in this study.

*Family support.* In early adolescence, family support is the best indicator of adolescents' emotional and behavioral problems (Bokhorst, Sumter, & Westenberg, 2010), and family characteristics, including support, cooperation, and good communication, have been shown to protect adolescents against stress and risk situations for problem behaviors (Chen, Huang, Wang, & Chang, 2012; Kramer-Kuhn & Farrell, 2016). Based on the stress-buffering hypothesis (Cohen & Wills, 1985), housing instability constitutes a stress situation for migrant adolescents, and depressive symptoms constitute a risk for aggressive behaviors, whereas family support constitutes a resource that protects adolescents' well-being. A harmonious family dynamic benefits self-esteem and self-efficacy of children, which may provide them the confidence to change the stressful situation and their emotional reactions (Wright & Wachs, 2019). Meanwhile, a warm parenting style promotes positive parent-child communication, and parents can provide strategies to reduce the feeling of loneliness for adolescents in facing adverse conditions through direct communication of recommendations and guidance (Heede & Hemphill, 2017; Ying et al., 2019).

Previous literature has indicated that family support mediates the relationship between economic pressure and loneliness among migrant children (Ying et al., 2019). Parenting warmth is also associated with lower levels of child internalizing problems and aggressive behaviors (Kliewer et al., 2004). More specifically, higher levels of emotional support from fathers also buffered the relationship between depression and aggression over time (Schleider & Weisz, 2016). Thus, we hypothesized that a high level of family support could buffer the relationship between depressive symptoms and aggressive behaviors among Chinese migrant adolescents.

*H2: Family support moderates the relationship between depression and aggression, in which at a high level of family support, the association between depression and aggression is attenuated.*

*Peer support.* Peer relationships have been considered a primary resource for emotional support in social contexts by providing a sense of security and belongingness for adolescents (Fontaine et al., 2009). Chinese youth who are accepted by peers, have intimate relationships, and are supported by friends, have been found to become less depressed over time by reducing negative feelings about themselves (Chen, Huang, Wang, & Chang, 2012). Moreover, Chinese migrant children have been reported to be more socially conscious and to value peer recognition more than their rural peers (Lu, Lin, Vikse, & Huang, 2016). Support by friends provides security and increases self-worth for migrant children, which in turn may link to less antisocial behaviors, such as aggression (Cohen & Wills, 1985), and it has been shown by Smigelskas and colleagues (2018) that adolescents with high perceived peer support showed less overt and relational aggression.

On the other hand, adolescents' perceptions of their peers' reactions to their behaviors have been emphasized as an important influence on the development of aggressive behavior (Henry et al., 2000). How peers react to their behaviors can affect both adaptive and maladaptive development for adolescents (Rubin, Bukowski, & Parker, 2006). Previous studies have also demonstrated that it is normal for popular adolescents to behave aggressively, and aggression can promote adolescents' social status (Cillessen & Mayeux, 2004; Sentse, Kretschmer, & Salmivalli, 2015). The acceptance of friends' fighting increases adolescents' use of fighting (Farrell et al., 2010). Meanwhile, peer associations are also a strong predictor of problem

behaviors, in which a strong association with an aggressive peer group has been found to predict aggressive behaviors for adolescents (Brumley & Jaffee, 2016; Haynie, 2002).

Previous studies illustrated that the relationship between aggression and depressive symptoms was moderated by peer support (Desjardins & Leadbeater, 2011). Evidence shows that perceived peer support can buffer the relationship between aggression and depression (Gazquez et al., 2016; Prinstein, Boergers, & Vernberg, 2001). A higher level of peer support has also been indicated to relate to lower level of depression (Chang, Yuan, & Chen, 2018), and more perceived social support also links to less antisocial behavior (Jia & Liu, 2017). Thus, we hypothesized that peer support would moderate the relationship between depression and aggression among Chinese migrant adolescents.

*H3: Peer support moderates the relationship between depression and aggression, in which at a high level of peer support, the association between depression and aggression is attenuated.*

## **Current Study**

Although previous studies have shown that migrant adolescents are facing challenges in their living, academic, and psychological conditions, less is known about the association between emotional and behavioral problems in a multi-level perspective focusing on Chinese migrant adolescents. The goal of the present study is to examine the association between depression and aggression and the moderating roles of family and peer support among Chinese migrant adolescents. We hypothesized that for Chinese migrant adolescents, higher levels of depression would predict more aggressive behavior. Given the risks associated with unstable housing, supportive relationships were viewed as a source of resilience to buffer the negative impacts associated with housing instability. Thus, the positive association between depressive symptoms



and aggressive behaviors should be attenuated by positive family support and peer support separately.

## **Method**

### **Participants and Procedure**

This study is a secondary analysis of data collected by the Institute of Psychology of the Chinese Academy of Sciences in 2010, and the original dataset contains 16,682 Chinese migrant children. Participants were recruited from 58 primary and junior high schools in Beijing. A set of self-report surveys was completed at school. These students are originally from 29 provinces in mainland China and migrated from their rural hometown to Beijing during the data collection. 76% of them supported or understood their parents' decision of migration, and most of them were living with their parents. Parents who were divorced or remarried only made up 5% of the sample, while only 3% of the parents had a bachelor or higher degree. The mean family monthly income was 4,378 Chinese Yuan (about 680 USD), which was lower than the average family monthly income in Beijing.

Due to the amount of missing data on length of time since migration and age at time of migration, the final sample in this study consisted of 6,970 migrant adolescents. 1,770 adolescents (25%) were in 4<sup>th</sup> grade, 1,965 adolescents (28%) were in 5<sup>th</sup> grade, 1,806 adolescents (26%) were in 6<sup>th</sup> grade, 486 adolescents (7%) were in 7<sup>th</sup> grade, 678 adolescents (10%) were in 8<sup>th</sup> grade, and 265 adolescents (4%) were in 9<sup>th</sup> grade. The length of time that had passed since migration ranged from 0 to 16 years ( $M_{\text{length}} = 5.03$ ,  $SD = 3.69$ ), and the age of the children at the time of migration ranged from 1 to 4 years old ( $M_{\text{age}} = 2.68$ ,  $SD = 1.17$ ). No other missing data were obtained.

### **Measures**

*Depressive symptoms.* The Chinese version of the Children's Depression Inventory (CDI; Liu et al., 2009; Kovacs, 1992) is a 27-item questionnaire assessing the symptoms of depression in children and adolescents. For each item, participants were presented with a series of three statements of varying severity and asked to select the sentence that best described their feelings for the previous week. Sample items included "I hate myself", "I do not like myself", "I like myself" (participants chose one of these), and "I have a lot of friends", "I have some friends, but I hope I can have more friends", "I do not have friends." Each item was converted to a 3-point Likert scale ranging from 0 to 2, where the higher score indicated a higher level of depression. A sum score was taken as the final score. The reliability of this measure was not available in this dataset, but since it is well-validated measure, it has been shown to have an excellent reliability (e.g., Watson et al., 2014; Lei et al., 2016).

*Aggressive behavior.* The Chinese version of the Aggressive Behaviors subscale from the Youth Self-Report (YSR-AB; Wang et al., 2009; Achenbach & Rescorla, 2001) contains 17 items designed to assess the behaviors and moods related to verbal and physical aggression. Items included "I tease others a lot" and "I physically attack others." Based on their experiences over the past 6 months, participants were asked to rate how well each item described them on a 3-point Likert scale ranging from 0 (not true) to 2 (very true or often true), with the higher score indicating more frequently being aggressive toward others. The mean score was taken as the final score. The reliability of this measure was not available in this dataset, but good reliability of YSR has been reported (e.g., Achenbach et al., 2008).

*Peer Support.* Peer support was assessed by a 2-item scale. The first item asked, "Which of the following describes the relationship between you and your classmates best?" Participants responded on a 4-point Likert scale: 1 = *we never care about each other*, 2 = *we may ask each*

other when we are facing difficulties, 3 = some of my classmates are concerned about me, or 4 = most of my classmates are concerned about me. The second item asked the frequency of joining group activities and student organizations, and participants rated on a 4-point Likert scale ranging from 1 (never) to 4 (always). The mean of the two items was taken as the final score. The intercorrelation of these two items was acceptable ( $r = .28, p < .01$ ).

*Family Support.* A 4-item scale was used to measure perceived family support for migrant adolescents. It began with the stem: “Can your family support you and help you solve the problems you are facing?” and each item asked for a rating of the perceived support from father, mother, sibling(s), and other family members (e.g., uncle, grandparents) separately. Participants rated how well the family member provided support on a 4-point Likert scale: 1 = never, 2 = seldom, 3 = sometimes, or 4 = always. The mean of these four items was taken as the final score, where the higher score indicated more perceived family support. Cronbach’s alpha for this measurement was acceptable ( $\alpha = .73$ ).

*Covariates.* Length of time since migration and age of the child at the time of migration were included in our model as control variables. Both were measured by a single item: “How long have you been living in Beijing?” and “How old were you when you moved to Beijing?”

### **Analysis Strategy**

All analyses were conducted using IBM SPSS Statistics version 23.0 (IBM co., Armonk, NY, USA). Preliminary correlations of measured variables were first analyzed. Two three-step hierarchical regression models were used to examine the associations of family and peer support on the relationship between depression and aggression separately.

## **Results**

### **Preliminary Analyses**

Means, standard deviations, and correlations among studied variables can be found in Table 1. Preliminary correlations indicated that both family and peer support were significantly and negatively associated with depression ( $r = -.32, p < .01$ ;  $r = -.34, p < .01$ ; respectively) and aggression ( $r = -.14, p < .01$ ;  $r = -.08, p < .01$ ; respectively). There was a significant positive association between depression and aggression ( $r = .37, p < .01$ ). Peer support had a positive relationship with length of time since migration ( $r = .04, p < .01$ ) but was negatively related with age at time of migration ( $r = -.04, p < .01$ ). The relationship between family support and age at time of migration was negative ( $r = -.04, p < .01$ ), and there was no significant correlation between family support and length of time since migration. Both length of time since migration and age at time of migration negatively associated with depression ( $r = -.02, p < .05$ ;  $r = -.08, p < .01$ ; respectively), and only age at time of migration significantly related with aggression ( $r = .03, p < .01$ ).

### **Moderating Effects of Family and Peer Support**

Hierarchical regression tested the moderating effect of family support and peer support on the relationship between depression and aggression separately (see Table 2). Aggressive behaviors were entered as the dependent variable for both models. In the first step, length of time since migration and age at time of migration were included as control variables. Both length of time since migration and age at migration were significant predictors in both models ( $R^2 = .01, p < .001$  for both models). The longer period of time since migration and migration at an older age were associated with more aggressive behaviors.

For the family support model, depression and family support were entered in the second step, and finally, the moderating effect of family support was tested in the final step. Results showed that aggression was predicted negatively by family support ( $\beta = -.02, p < .05$ ) and

positively by depression ( $\beta = .35, p < .001; \Delta R^2 = .13, p < .001$ ); however, the moderating effect of family support was not significant ( $\beta = .03, p = .67; \Delta R^2 = .00, p = .67$ ).

For the peer support model, depression and peer support were entered in the second step, and the interaction term of depression and peer support was tested in the final step. Both peer support and depression were significantly and positively associated with aggression ( $\beta = .05, p < .001; \beta = .38, p < .001$ ; respectively;  $\Delta R^2 = .13, p < .001$ ). The interaction term of depression and peer support was a significant predictor of aggression ( $\beta = .20, p < .01; \Delta R^2 = .002, p < .01$ ). As shown in Figure 2, the significant interaction was further investigated by plotting the regression lines at both a high level (+1 SD above the mean) and a low level (-1 SD below the mean) of peer support and calculating the simple slopes. The association between aggression and depression was positive at both high and low levels of peer support. At a higher level of perceived peer support ( $\beta = .018, t = 24.9, p < .001$ ), the association between aggression and depression was strengthened, and a lower level of peer support weakened the positive association between depressive symptoms and aggressive behaviors ( $\beta = .015, t = 23.6, p < .001$ ).

## Discussion

The aim of the current study was to investigate the relationship between depressive symptoms and aggressive behaviors in Chinese migrant adolescents, and the roles of family support and peer support as moderators of this association. Our hypotheses were partially supported. There was a significant positive association between depression and aggression, and both family support and peer support were negatively related to both depression and aggression. After controlling for the length of time since migration and age at migration, family support did not have a significant moderating effect on the association between depression and aggression. However, peer support moderated this association, where a stronger relationship between

aggression and depression was found when there was a high level of perceived peer support. These findings suggested that among Chinese migrant adolescents, higher levels of depression predicted more aggressive behaviors, and this association was enhanced by positive peer support.

As expected, depressive symptoms were a significant predictor of aggression. A higher level of depression was linked to more aggressive behaviors, which provides evidence of the co-occurrence of depression and aggression among Chinese migrant adolescents. According to the acting-out model, aggressive behaviors can be understood as an external expression of depression (Wolff & Ollensick, 2006). In line with previous literature, depressed adolescents sometimes adopt maladaptive behaviors, such as aggression, as a way to act out their feelings (Kofler et al., 2011). The irritability linked to depressive mood may inspire these problem behaviors in interpersonal relationships among adolescents (Woff & Ollemsick, 2006). Our results indicated that showing either internalizing problems or externalizing problems may be a signal for other mental health issues among Chinese migrant adolescents. It may be necessary to examine both emotional and behavioral traits in understanding the social and psychological adjustment of Chinese migrant children.

Although it has been well documented that because of the housing mobility, Chinese migrant youth are at risk for both depression and aggression, there is limited research in the literature that examined the relationship between internalizing and externalizing problems focused on this population. Our finding suggests that for migrant adolescents, the performance of antisocial behaviors may not solely due to the issues related with housing instability, and it may also be enhanced by feeling depressed. It is important to note that one negative outcome caused by migration may strengthen another adverse effect of migration, which would increase the vulnerability of maladjustment for migrant adolescents.

Contrary to our prediction, although family support was a significant predictor of aggression, it did not moderate the relationship between depression and aggression. The more perceived help and support from family members was associated with fewer aggressive behaviors for migrant adolescents, which was consistent with previous literature that sufficient family support can reduce externalizing behavioral problems (Blum, Ireland, & Blum, 2003). Based on the ecobiodevelopmental model, the positive connections between children and parents within the microsystem promote positive behavioral adaptation (Mayberry, Shinn, Benton, & Wise, 2014). Even though the housing movement interrupts adolescents' original social relationships within the microsystem, it cannot be denied that the connection between migrant adolescents and their parents is not totally disrupted, and a healthy parent-child interaction still benefits social adjustment for Chinese migrant adolescents.

However, family support was not a buffer between depressive symptoms and aggressive behaviors for this sample of migrant adolescents. This finding is consistent with a previous study showing that some factors within the family system, including maternal sensitivity and distress, did not moderate the association between child functioning and environmental instability (Coley, Lynch, & Melissa, 2015). One explanation might be that the causal factors of depression and aggression for migrant adolescents may lie in their peer social networks instead of in their families, which would indicate a more important role of peers, rather than parents. In early adolescence, youth seek out parental guidance less often than at earlier stages, and they instead have an intensifying need for intimacy from peers (Allen et al., 2005; LaFontana & Cillessen, 2010). The instability of housing, neighborhood, and peer relationships have been found to be associated with negative physical and psychological outcomes (Coley, Lynch, & Melissa, 2015). For migrant adolescents, their migrant status along with their low socioeconomic status, social

discrimination, and exclusion within their peer social networks may be the main factors contributing to their depressive mood and aggressive behaviors. It is noteworthy to mention that migrant children moved from rural to urban areas because of the migration of their parents, and this mobility happened at the level of families, in which parents and children can be seen as a unit. Thus, migrant parents and other family members shared a lower social and socioeconomic status with their adolescent children. Based on the ecobiodevelopmental model, housing instability links to changes in peer contexts, which may mean that adolescents with a different social status in migrant adolescents' current social networks, such as local citizen peers, may play a more effective role. Meanwhile, due to the economic pressure, migrant parents have been known to be less sensitive and warm in their parenting (Mistry, Vandewater, Huston, & McLoyd, 2002), which may weaken the quality of support and in turn contribute to its non-significance as a moderator.

For Chinese migrant adolescents, peer support moderated the association between depression and aggression. In line with some previous studies, peer support was positively associated with aggressive behaviors, and high levels of perceived peer support have been found to strengthen the positive association between depression and aggression (Desjardins & Leadbeater, 2011). At the same level of depression, migrant adolescents who received more peer support reported more aggressive behaviors than those with lower levels of peer support. Recent cross-cultural research conducted in nine countries (including both Western and Eastern countries, e.g., China, Italy, Thailand, and the United States) illustrated that peer support predicted subsequent aggressive behaviors among adolescents (Lansford et al., 2020). It has been well known that there is a strong bidirectional relationship between aggressive behaviors and peer relationships (Mayeux & Cillessen, 2008). Given that migrant adolescents are at risk of



discrimination due to their migrant status, peer support here may act as a signal of acceptance, in which peers accepted this type of aggressive behaviors (Pedersen et al., 2017). As mentioned previously, peer relationships may contribute the most for migrant adolescents in terms of their mental health, and support by peers may facilitate the adoption of aggressive behaviors for migrant adolescent in achieving their social goals of being accepted by others. Interventions with the goal of regulating behavioral norms for adolescents may be important in families and schools. The lack of equality for migrant adolescents in educational settings may facilitate patterns of antisocial peer interactions and consequently lead to potential risk-taking behaviors for migrant adolescents.

This study examined internalizing and externalizing problems among Chinese migrant adolescents in a multi-level perspective with a large sample size. The associations between depression, aggression, family support, and peer support were explored, with unique patterns emerging for family support and peer support. It also provides some empirical evidence for the ecobiodevelopmental model in a non-Western culture. A major strength of this research is contributing to our understanding of the relationship between depression and aggression among Chinese migrant adolescents, and a potential mechanism underlying this relationship, as most research focused on Chinese migrant adolescents typically focuses solely on mental health or behavioral problems. Although previous literature has yielded important findings on mental health of Chinese migrant adolescents, understanding the co-occurrence of internalizing and externalizing problems as well as the different roles of family and peer may promote researchers, educators, and government to develop better policies and programs protecting migrant adolescents from risks. Results from this study emphasize the potential for peer influence on migrant adolescents, which may also help elucidate targets for intervention.

## **Limitation and Future Direction**

There are also some limitations of this study. First, information on gender was not available in the dataset. Although some research has indicated that there are no sex differences in the relation between depression and aggression over time (Blain-Arcaro & Vaillancourt, 2017), sex has been demonstrated to moderate the association between depression and aggression in other studies (Wiesner, 2003). Barnes, Howell, Thurston, and Cohen (2017) also found that depressive symptoms positively predicted aggression for girls only, and maternal support negatively predicted aggressive behaviors for boys only. Further, the focus on overt physical and verbal forms of aggression means that the results might not capture aggressive patterns that are more typical of adolescent girls, who are more likely to use relational forms of aggression rather than physical ones (Card, Stucky, Sawalani, & Little, 2008). Thus, it should be reasonable to investigate sex differences in future studies.

Secondly, the self-report measure of aggression may bring some biases due to the subjectivity of the items. Although the Youth Self-Report is a well-validated measure of aggression and has been used for many years, sociometric methods may be a more powerful tool to assess aggressive behaviors for adolescents by using peer nominations (Poulin & Dishion, 2008). Some measurement weaknesses may also link to small effect sizes in some of our significant findings (Thompson, 2007). For example, future studies using more extensive, established measures of peer support will bolster the findings presented here.

Last, the dataset was in a cross-sectional design, which prohibited the exploration of changes over time. The length of time since migration has shown a significant negative correlation with depression in our study. Longitudinal studies have also shown the fluctuation in the frequency of being aggressive for children and adolescents (e.g., Vaillancourt et al., 2003),

and the association between peer relationship and aggression also changes over time (Cillessen & Mayeux, 2004). Longitudinal designs may map out a clearer pattern of the relationship between depression and aggression and the moderating role of social support.

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**Table 1.***Means, Standard Deviations and Correlations Among Studied Variables*

	Peer	Family	Dep	Agg	Length	Age	Mean	SD
Peer support	-						2.77	.68
Family support	.31**	-					3.04	.73
Depression	-.34**	-.32**	-				40.06	7.62
Aggression	-.08**	-.14**	.37**	-			.35	.33
Length	.04**	-.01	-.02*	.02	-		5.03	3.69
Age of migration	-.04**	-.04**	-.08**	.03**	-.89**	-	2.68	1.17

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



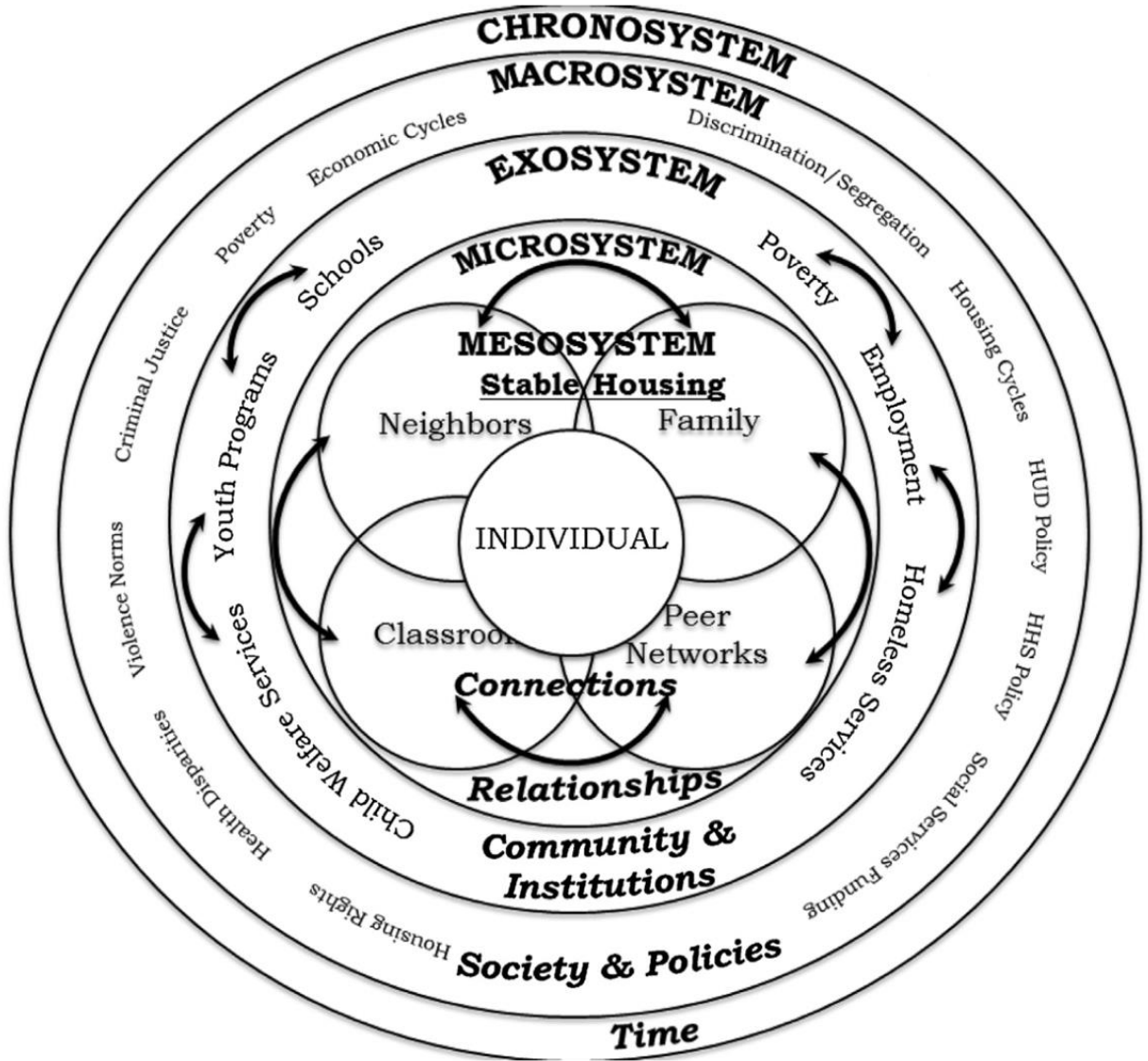
**Table 2.***Predicting Aggression from Depression, Family, and Peer Support*

	Aggression		
<b>Family Support</b>	$\beta$	$t$	$\Delta R^2$
Step 1.			.014***
Length of Migration	.258	9.68***	
Age of Migration	.263	9.90***	
Step 2.			.127***
Family Support	-.024	-2.07*	
Depression	.351	29.83***	
Step 3.			.000
Family Support $\times$ Depression	.025	ns	
<b>Peer Support</b>			
Step 1.			.014***
Length of Migration	.262	9.76***	
Age of Migration	.267	9.95***	
Step 2.			.129***
Peer Support	.051	4.26***	
Depression	.377	31.48***	
Step 3.			.002**
Peer Support $\times$ Depression	.202	3.57**	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

**Figure 1.**

*The Ecobiodevelopmental Model of Housing Stability (Fowler et al., 2015)*



**Figure 2.**

*Peer Support Moderates the Association Between Depression and Aggression.*

