What Really Matters for Social Adaptation Among Left-Behind Children in China? A Systematic Review and Meta-Analysis

Junhua Zhang1*, Yu Zhang1 & Fang Xu1

1School of Education Science, Jiangsu Key Laboratory for Big Data of Psychology and Cognitive Science, Yancheng Teachers University, Yancheng, China

*Correspondence: School of Education Science, Jiangsu Key Laboratory for Big Data of Psychology and Cognitive Science, Yancheng Teachers University, 50 Kaifang Road, Yancheng City, Jiangsu Province 224002, China. E-mail: junhuazh2003@163.com

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Abstract

Compared with non-left-behind children, left-behind children in China have lower social adaptation and the underlying reasons deserve further study. This systematic review and meta-analysis included 29 studies published between 2006 and 2019. Protective factors of Left-behind children's social adaptation were resilience (r=0.574), self-efficacy (r=0.538), emotional intelligence (r=0.421), self-esteem (r=0.404), positive coping (r=0.471), attachment (r=0.354) and social support (r=0.338) while risky factors were loneliness (r=-0.453) and social anxiety (r=-0.360). Age, birthplace, father/mother migration and the frequency of parent-child communication also have a certain impact on their social adaptation, but the effect size is relatively small. This study can provide some enlightenment for intervention programs and policy adjustment. More empirical studies focusing on influencing factors for social adaptation of left-behind children will be needed in the future.

Keywords: left-behind children, meta-analysis, social adaptation, predictor

1. Introduction

Social adaptation refers to the capacity to compromise, relate, confront and to cooperate with the environment and others(Samadi & Sohrabi, 2016). Social adaptation is of great significance to individuals and is closely related to various developmental outcomes, such as academic achievement, future job, life quality and physically and mentally healthy(Neely-Prado, Navarrete, & Huepe, 2019).

With rapid development of social economy, the number of rural-urban migration is huge in the past several decades in China. Numerous children are left in the countryside by their migrant parents who go to cities for better income. Depending on the data from the Ministry of Civil Affairs of the People's Republic of China, there are more than 6.97 million rural Left-Behind Children in 2018(Li, 2018). Due to a long separation from parents, left-behind children may not be adequately monitored, thus hindering the development of their social adaptation. A recent meta-analysis found that social adaptation of left-behind children was significantly lower than non-left-behind children (Zhang, Yan, Qiu, & Dai, 2018). Thus, a detailed understanding of influencing factors of social adaptation is necessary to change this disadvantage.

Various factors affecting the social adaptation of left-behind children are constantly being explored, including gender, grade, number of parents out, parenting styles, social support, coping styles, mental health, and many other factors. These factors are primarily from family, school, individual and society (Zhang, 2014). Family factors are considered to be primary factors influencing social adaptation of left-behind children. Parents and children constitute a family triangle structure in the reproductive system (Fei, 2007). Left-behind children are in the state of separation from parents for a long time. The stable family triangle structure has been broken and the family ecosystem is unbalanced when parents migrate. Supervision and education toward left-children have been reduced, which is risk of social adaptation(Sun & Sun, 2019). Family atmosphere and its dimensions had a significant effect on left-behind children’s mental health (Yang & Liu, 2017). School-related factors are also given an important influence on social adaptation. Supportive school climate had a positive effect on left-behind while controlled school climate had a
negative effect on them (Wang, 2018). Teachers support, peer support has a positive effect on left-children’s social adaptation, while the sense of school belonging played a mediating role (Wei et al., 2016). It was found that a closer relationship with peers can lead to more active social interaction (Liang, 2017). Social support was negatively correlated to externalizing problem behavior and internalizing problem behavior (Zhao, Ling, Chen, & Teng, 2017). Community environment, social support and perceived discrimination are essential social factors. In a rural community, the unsatisfactory environment and the humble quality of the educator affect seriously the left-behind children’s social adaptation (Wang, 2007). Perceived discrimination negatively affected one’s social adaptation (Yang et al., 2019). Individual-related factors are also crucial. Self-esteem is positively correlated with social adaptation, while loneliness is negatively correlated with social adaptation (Jin, 2011). It was pointed out that the resilience had a significant predictive power for their adaptation, which also provided a new perspective for improving the social adaptation of left-behind children (Liu, 2012). Liu and other scholars have conducted reviews of social adaptation among left-behind children, and reached a more general conclusion (Liu, 2008). However, there are some conflicting conclusions and it is difficult to determine which factors are most significant from these studies. This systematic review and meta-analysis aimed to summarize predictors of social adaptation among left-behind children, which may have potential implications for research and practice.

2. Methods

Recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISRM) were followed in this study (Liberati et al., 2009).

2.1 Search Strategies

We searched CNKI, Wanfang database, Chongqing VPN database, PubMed (Medline), OVID database and Web of Knowledge on August 15, 2019. Search strategies and the number of documents were listed in Supplementary Material 1. The search items in CNKI was as follows:

# 1 left-behind
# 2 Children or adolescents
# 3. Social adaptation or social Adaptation or Social Adaptation Ability

Searching: 1 and 2 and 3

2.2 Inclusion and Exclusion Criteria of Literature

Inclusion criteria: a) social adaptation was measured by any standardized scales; b) the same influencing factor was studied by more than two studies; 3) providing r or other parameters that can be converted into r, such as t, p, etc.; 4) left-behind children in mainland China; (5) literature language is English or Chinese; and (6) no intervention measures are used. In the case of papers using the same data, we link them together.

Exclusion criteria: 1) no quantitative measurement of social adaptation; 2) the subjects are not left-behind children in the mainland; 3) case studies. After screening, the influencing factors mainly focus on gender, grade, left-behind characteristics, self-esteem, self-efficacy, social support, peer relationship and so on. We divide them into demographic predictors, individual predictors, and contextual predictors.

2.3 Literature Screening and Data Extraction

We imported all documents into endnote and used “Find Duplicates” to remove duplicates. Then two researchers read the titles and abstracts of the non-repetitive papers independently and excluded irrelevant literature. After that, two researchers downloaded the full PDFs and read them independently. They removed the non-conforming references and list the reasons for exclusion. For the retained studies, two authors independently extracted the data. The main data extracted included: first author, publication date, survey area, number of subjects, age of subjects, measurement scales, influencing factors, main conclusions, gender of subjects, correlation coefficient or other parameters that can be converted into r, etc.

2.4 Outcomes

The main outcome indicators are the correlation between social adaptation (total score or sub-dimension) and various factors. When r is not given in the literature, t and which can be converted to r, are used. When both positive adaptation and negative adaptation are included in studies, only positive adaptation data is extracted.
2.5 Study Quality Checklist

The same study quality check was used as a previous study (Chai, Du, Li, Su, & Lin, 2019). There were 14 items in the checklist, including reporting, external validity, internal validity and power. Higher score meant higher quality of methodology. Two authors independently rated score of each included study and reached consensus through further discussions. The content of the checklist was listed in Supplementary Material 2.

2.6 Statistical Analysis

Pearson correlation coefficient was the effect size in this meta-analysis. For studies without \( r \) but with inferential statistical data (such as \( t \), \( F \) or \( p \)), we use Comprehensive Meta-Analysis 3.0 software to integrate them into \( r \). When comparing three or more groups, we compare each category in pairs. For example, types of going out can be divided into three categories (father going out alone, mother going out alone and both parents going out). Pearson correlation coefficient \( r \) was calculated through \( t \), which can be computed by \( m \), \( sd \) and \( n \) in any two groups (Borenstein, Hedges, Higgins, & Rothstein, 2011). For the years of parents going out and the grades of left-behind children, \( r \) was calculated by the same method, using two groups at both ends because they are continuous variables. We use Cohen's guidance to explain the effect size, where \( r \) is at least 0.10 = small, 0.30 = medium, and 0.50 = large (Cairns, Yap, Pilkington, & Jorm, 2014; Cohen, 1992). Because of the heterogeneity among the studies, we use the random effect model to analyse the data (Cortese et al., 2018). \( I^2 \) was used to assess heterogeneity while Egger test and funnel plots to assess publication bias (Egger, Davey Smith, Schneider, & Minder, 1997; Egger, Smith, & Phillips, 1997).

3. Results

3.1 Characteristics of Included Studies

556 non-repetitive references were screened in this study. The PRISMA flow chart in Figure 1 detailed the number of references selected and rejected at each stage Reasons for rejection after screening the full text can be found in Supplementary Material 3. The final included research can be found in Supplementary 4. Children's attitudes towards parents migration, race, parenting style, number of peers, sports lifestyle, family social-economic status, teacher-student relationship, peer relationship, interpersonal self-reliance, alienation, health quality, peer communication ability, locus of control, social problem solving ability, self-control, discrimination perception, sense of responsibility, gratitude, depression, family intimacy and sense of security were excluded because only one study was available.

Table 1 listed author, year, number, region, measurement of social adaptation, and influencing factors. A total of 15702 left-behind children were included with 103 effective values. The subjects involved 18 provinces, including Anhui, Chongqing, Fujian, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jilin, Jiangxi, Liaoning, Shandong, Shanxi, Shanghai, Sichuan, Yunnan and Zhejiang. The mean score of study quality was 11/14, ranging from 8 to 13. However, most studies scored zero in terms of representation of sampling.
Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Table 1. Descriptive Table of Studies Included

| Author/Year | n  | Grade/Age | Region |
|-------------|----|-----------|--------|
| Bi, 2015    | 36 | G7-9      | Liaoning |
| Chen, 2018  | 715| G10-11    | Henan |
| Cheng, 2018 | 882| <16Y      | Sichuan, Yunnan, Guizhou |
| Cui, 2009   | 1048| G 3-6    | Hunan, Anhui, Shanghai |

| Scales of social adaptation | Number of effect size | Predictors | Quality |
|-----------------------------|-----------------------|------------|--------|
| Social adaptation of second school students by Chen J.W | 3 | grade, gender, self-esteem | 10 |
| Adolescent Behavior Questionnaire by Cui L.X | 3 | father attachment, mother attachment, peers attachment | 12 |
| Social adaptation of second school students by Chen J.W | 7 | gender, only-child, birthplace, grade, care-giver, number of parents migration, frequency of parents going back | 9 |
| Social adaptation Scale by Yang Y.P. | 2 | gender, self-esteem | 13 |
| Author(s) | Year | Location | Scale/Questionnaire | Variables Studied | Page |
|-----------|------|----------|---------------------|-------------------|------|
| Deng, 2010 | 2010 | Shandong, Henan, Shanxi, Zhejiang | Social adaptation of second school students by Chen J.W. | positive coping, negative coping | 9 |
| Gong, 2016 | 2016 | Jiangxi | Adolescent prospective adaptation questionnaire by Mu PJ | gender | 13 |
| Gu, 2012 | 2012 | Jilin | Social Adaptive Behavior Scale for Children Aged 3-7 by Hangzhou University | resilience | 8 |
| Guo, 2014 | 2014 | Hebei | Adolescent social adaptation behavior scale by Zou H. | loneliness | 9 |
| Kuang, 2013 | 2013 | Guizhou | Social adaptation scale by Jia L.B. | self-esteem, resilience | 12 |
| Li H, 2015 | 2015 | Guangxi | Social adaptation diagnostic scale by Zeng R.C. | only-child, class cadre, gender, grade, self-esteem, emotional intelligence, number of parents migration | 12 |
| Li P, 2010 | 2010 | Guangxi | Social adaptation Scale by Yang Y.P. | gender, emotional intelligence | 11 |
| Li SL, 2016 | 2016 | Chongqing | Social adjustment disorder from Mental Health Rate Scales for Pupil | gender, grade | 12 |
| Li ZQ, 2015 | 2015 | Sichuan | Adolescent social adaptation behavior scale by Zou H. | gender, grade, number of parents migration, frequency of parents-child communication | 11 |
| Liu H, 2012 | 2012 | Hubei | Adolescent Psychological Adaptation Scale | gender, grade, resilience, years of parents migration | 11 |
| Liu ML, 2009 | 2009 | Chongqing, Yunan | Social adaptation of second school students by Chen J.W. | gender, grade, care-giver, number of parents migration, self-esteem, social support | 12 |
| Liu XJ, 2016 | 2016 | Anhui | Adolescent social adaptation behavior scale by Zou H. | gender, social support, positive coping, negative coping | 10 |
| Liu XW, 2018 | 2018 | Hunan, Guangxi | Social adaptation scale by Hu T. | gender, grade, birthplace, self-esteem, self-efficacy | 11 |
| Pan, 2018 | 2018 | Guangxi | Social adaptation Scale by Yang Y.P. | gender, grade, care-giver, frequency of parents going back, years of parents migration, resiliency | 12 |
| Shen, 2010 | 2010 | Hubei | Social adaptation scale by Hu T. | gender, grade, social anxiety | 12 |
| Sun, 2018 | 2018 | Unclear | self-edited | gender, class cadre, only-child | 12 |
| Wang, 2012 | 2012 | Henan | self-edited | gender, grade, care-giver, frequency of parents-child communication, years of parents migration, father attachment, mother attachment, peers attachment | 11 |
| Xiao, 2015 | 2015 | Guangxi, Hunan | Adolescent social adaptation behavior scale by Zou H. | gender, grade, frequency of parents-child communication, years of parents migration, number of | 9 |
Table 2. Meta-Analysis of Demographic Predictors (r)

| Type of analysis | K  | N       | r       | 95%CI   | Z   | P   | Heterogeneity | Egger's Test |
|------------------|----|---------|---------|---------|-----|-----|----------------|--------------|
|                  |    |         |         |         |     |     | Q              | p            |
|                  |    |         |         |         |     |     | I2             | t            | p       |
| gender           | 18 | 11087   | -0.070  | -0.159,0.020 | 1.535 | 0.125 | 375.777 | 0.000 | 95.476 | 1.130 | 0.274 |
| Grade/age        | 13 | 6246 | 0.060  | 0.035,0.085 | 4.754 | 0.000 | 71.937 | 0.000 | 83.319 | 0.513 | 0.617 |
| only-child       | 3  | 1756   | -0.033  | -0.085,0.019 | 1.235 | 0.217 | 2.433 | 0.296 | 17.787 | 6.543 | 0.096 |
| Class cadre      | 2  | 874     | 0.264  | 0.160,0.361 | 4.839 | 0.000 | 2.636 | 0.104 | 62.062 |           |       |
| birthplace       | 2  | 1762   | 0.081  | 0.034,0.127 | 3.393 | 0.001 | 0.868 | 0.352 | 0.000 |           |       |
| care-giver       |    |         |         |         |     |     | 5.310 | 0.257 | 24.665 | 0.277 | 0.799 |
| care-giver(parents-grandparents) | 5 | 2641 | -0.007 | -0.052,0.038 | 0.309 | 0.757 |           |       |
| care-giver(parents-others) | 5 | 1678 | -0.014 | -0.064,0.036 | 0.558 | 0.577 | 4.239 | 0.375 | 5.648 | 1.340 | 0.272 |
| care-giver(father-mother) | 3 | 520 | -0.033 | -0.172,0.108 | 0.454 | 0.650 | 4.791 | 0.083 | 59.764 | 2.565 | 0.236 |
| number of parents migration |    |         |         |         |     |     | 3.129 | 0.536 | 0.000 | 0.039 | 0.971 |
| father migration only |    |         |         |         |     |     | 3.580 | 0.622 | 0.000 | 1.354 | 0.247 |
| only-mother migration only |    |         |         |         |     |     | 1.998 | 0.046 | 0.000 | 0.135 | 0.427 |
| Both parents migration-one parent migration years of parents migration | 6 | 4435 | -0.030 | -0.059,-0.00 | 1.998 | 0.046 | 3.580 | 0.622 | 0.000 | 1.354 | 0.247 |
| frequency of parents going back |    |         |         |         |     |     | 9.820 | 0.020 | 69.450 | 0.229 | 0.839 |
| frequency of parents-child communication |    |         |         |         |     |     | 15.274 | 0.002 | 80.358 | 0.051 | 0.963 |
Table 3. Meta-Analysis of Individual Predictors (r)

| Type of analysis    | K   | N   | r    | 95%CI          | Z   | P   | Q   | p   | I² | t   | p   | Heterogeneity | Egger's Test |
|---------------------|-----|-----|------|---------------|-----|-----|-----|-----|-----|-----|-----|--------------|--------------|
| Resilience         | 6   | 3354| 0.574| 0.484,0.652   | 10.187 | 0.000 | 62.244 | 0.000 | 91.967 | 0.722 | 0.510 |
| Self-efficacy      | 2   | 1421| 0.538| 0.470,0.601   | 12.785 | 0.000 | 3.109 | 0.078 | 67.839 |
| Emotional intelligence | 3   | 1128| 0.421| 0.303,0.661   | 2.546 | 0.011 | 68.929 | 0.000 | 97.097 | 0.461 | 0.724 |
| Self-esteem        | 7   | 3206| 0.404| 0.092,0.645   | 2.496 | 0.013 | 512.93 | 0.000 | 98.829 | 1.519 | 0.189 |
| Positive coping    | 3   | 1526| 0.471| 0.431,0.510   | 19.938 | 0.000 | 0.183 | 0.913 | 0.000 | 3.030 | 0.202 |
| Negative coping    | 3   | 1526| -0.116| -0.390,0.176  | 0.770 | 0.436 | 67.079 | 0.000 | 97.018 | 3.274 | 0.188 |
| Loneliness         | 2   | 888 | -0.453| -0.504,-0.400 | 14.525 | 0.000 | 0.347 | 0.556 | 0.000 |
| Social anxiety     | 2   | 304 | -0.360| -0.477,-0.230 | 5.180 | 0.000 | 0.011 | 0.915 | 0.000 |

Table 4. Meta-Analysis of Contextual Predictors (r)

| Type of analysis    | K   | N   | r    | 95%CI          | Z   | P   | Q   | p   | I² | t   | p   | Heterogeneity | Egger's Test |
|---------------------|-----|-----|------|---------------|-----|-----|-----|-----|-----|-----|-----|--------------|--------------|
| Social support      | 4   | 2644| 0.338| 0.192,0.470   | 4.369 | 0.000 | 43.710 | 0.000 | 93.137 | 0.077 | 0.945 |
| Attachment          | 3   | 1518| 0.354| 0.107,0.560   | 2.763 | 0.006 | 50.871 | 0.000 | 96.096 | 0.672 | 0.623 |
| Father attachment   | 3   | 1518| 0.324| 0.083,0.530   | 2.604 | 0.009 | 47.202 | 0.000 | 95.763 | 0.349 | 0.785 |
| Mother attachment   | 3   | 1518| 0.358| 0.103,0.570   | 2.704 | 0.007 | 54.455 | 0.000 | 96.327 | 0.379 | 0.769 |
| Peers attachment    | 3   | 1518| 0.311| 0.070,0.518   | 2.505 | 0.012 | 46.690 | 0.000 | 95.716 | 0.637 | 0.638 |

3.2 Demographic Predictors

According to Table 2 and Supplementary Material 5, age, birthplace, class cadre, one/both parent migration and frequency of parents-child communication have significant influence on social adaptation of left-behind children. Left-behind children from towns score higher than left-behind children from villages. Older left-behind children and class cadre score higher than others. Left-behind children with low frequency of parent-child communication have lower social adaptation. However, according to Cohen's criteria, they are all less than 0.3, which means a small amount of effect size. Other factors including gender, only-child, care-giver type have no significant influence.

3.3 Individual Predictors

According to Table 3, individual variables include self-esteem, resilience, emotional intelligence, self-efficacy, coping style (positive coping, negative coping), social anxiety, loneliness. Except negative coping in coping style, other variables have a significant impact on social adaptation of left-behind children. Self-esteem, resilience, emotional intelligence, self-efficacy, positive coping are protective factor of social adaptation. According to Cohen's criterion, the correlation coefficients of resilience and self-efficacy with social adaptation are greater than 0.5, which are large effect value. The correlation coefficients of self-esteem, emotional intelligence and positive coping with social adaptation is between 0.3 and 0.5, which are medium effect value. The correlation coefficient between social anxiety and loneliness and social adaptation is less than 0, which are risk factors of social adaptation. According to Cohen's criterion, the absolute value of correlation coefficient is between 0.3 and 0.5, which belongs to the medium effect value.

3.4 Contextual Predictors

According to Table 4, the external factors include social support, attachment (father attachment, mother attachment and peer's attachment), which are the protective factor of social adaptation. According to Cohen's criterion, the correlation coefficient of social support, attachment and social adaptation is between 0.3 and 0.5, which belongs to the moderate effect value.

4. Discussions

This study examined what factors influenced social adaptation of Chinese left-behind children and some key protective factors and risk factors were identified across 29 studies. The effect of all demographic variables is a small effect value, indicating little influence on social adaptation, partly
because most studies are not randomly sampled. The biggest predictor of demographic variable is class cadre. Those on duty in class have higher social adaptation, which implies that providing students with certain responsibilities in class is positively related to their social adaptation. Some uncontrollable variables such as gender, only-child, and age have little guidance for educational interventions.

Individual variables are most important predictors of social adaptation while strongest predictors were resilience and self-efficacy with large effect sizes in the current review. Individuals with high resilience can achieve relatively good development results after serious adversity (Rutter, 2013). Self-efficacy has much potential for playing a major role in helping one gain successful experience (Maddux & Stanley, 1986). The results suggest the importance of enhancing resilience and self-efficacy in the process of improving social adaptation among Chinese left-behind children.

As to contextual predictors, attachment and social support were found to have medium effect sizes in this study, consistent with previous studies (Chai et al., 2019; Oldfield, Humphrey, & Hebron, 2016). Parent attachment can help children explore unfamiliar environments and promote interaction with others. The acceptance and trust of peers are the foundation of stable social skills and are helpful in reducing the sense of alienation. Participation in collective activities or frequent exchange of ideas can increase the level of parent and peer attachment. Social support not only helps a person to achieve a goal, but also helps to share emotions, frustrations or to reach an understanding of problems (Cullen, 1994). Consistent with social connection theory (Hirschi, 1969), previous studies have found the protective effect of peer support and resilience on social adaptation of left-behind children (Lan & Wang, 2019). Peer relationship is beneficial to children's mental health and social adaptation (Rubin, Bukowski, & Laursen, 2009), and Intervention programs focusing on enhancing resilience and peer relationship can help improve social adaptation of left-behind children. According to the theory of social support, individuals with more social support are likely to maintain psychological health in the face of stress (Hobfoll, Freedy, Lane, & Geller, 1990). Therefore, helping left-behind children to gain more perceived or actual social support from the community and social networks is an important means to improve their social adaptation.

These conclusions need to be treated with caution for some shortcomings. Firstly, all the studies included were all cross-sectional. Strictly speaking, these studies focused on the correlation between variables rather than causality. Secondly, they deal with the relationship between two variables without paying attention to the complex relationship among multiple variables. Thirdly, some conclusions only depend on a few empirical studies (even only two) due to the number limit of studies included, which may reduce the reliability and stability of the study. In addition, there may be some differences on classification of predictors and different classification may lead to different consequences.

5. Conclusion
This study focuses on predictors of social adaptation, which may deepen our understanding of the social adaptation among Chinese left-behind children. Demographic variables including number of parent migration and care-giver type had little influence on the social adaptation of Left-behind children. Resilience, self-efficacy, attachment, social support, positive coping, loneliness and social support were the top seven protective predictors. Social anxiety and loneliness are important risk factors. The results of our meta-analysis should be taken into account when formulating interventions aimed at strengthening social adaptation. More high-quality studies in this field are needed in future studies.

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Availability of Data and Materials: The data sets analyzed during the current study is available from the corresponding author on reasonable request.

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