The Impact of Caregivers' Rewarding and Punishing Behavior on Children's Emotional and Social Skills Development in Rural Areas of Contemporary China

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Abstract: This study compared the differences in emotional and social skills development between children aged 3-6 years living in rural China who are left to be raised by their grandparents and those nurtured by their parents. By using questionnaires, this study investigated the relationship between the rewarding and punishing behaviors of caregivers and the children's emotional and social skills development.

Results found that although the grandparents had significantly lower levels of education than the parents, the educational level of the caregivers did not emerge as a significant predictor of children's emotional anxiety. The number of children was associated with the Preschool Anxiety Scale. Clear punishment standards were negatively associated with social skills. Clear rewarding standards and rewarding rates were positively related to social skills. The results indicated that children raised by grandparents experienced more emotional anxiety, but there was no association between this emotional anxiety and parenting behaviors such as rewards and punishments by the caregivers. It is possible that emotional anxiety may be due to left-behind children experiencing parent-child separation. However, the presence of siblings could help children to alleviate this emotional anxiety. It was found that clear punishment standards set by the caregivers did not contribute to the development of the children's social skills, which may be due to the negative approach of caregivers in educating children about punishment standards, while rewarding behaviors were conducive to the development of children's social skills.

Keywords: *grandparents, parenting behaviors, left-behind children, emotional development, social skills*

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1. Introduction

With the rapid development of China's economy in the 21st century, there is a large surplus of labor in rural areas, and many rural couples have gone to urban areas to work for higher incomes. Along with this population movement, a large number of children are left to live with their grandparents in rural areas due to the higher cost of living and consumption in urban areas compared to that in rural areas, and the strict household registration system between regions, which does not allow the children of a rural household to obtain the benefits of an urban household. Children left behind and parented by their grandparents usually do not see their parents for about 3 to 6 months. They are a vulnerable group of children in rural areas called left-behind children (LBC) (Duan, Yang, 2008). According to the government statistical report in 2020, In 2019, the total number of LBC in primary and junior high schools in rural China was up to 13.84 million (China Statistical Yearbook, 2020).

As society pays more attention to left-behind children, more and more research evidence has proved that with regard to physical and mental developmental problems, LBC in rural areas are disadvantaged in comparison to other children. However, the problem of LBC in rural areas cannot be fundamentally solved in a short period of time. Economic development in rural areas and educational resources lag behind those in urban areas. Such a social environment itself is not conducive to the growth of children. Chronically poor families provided lower quality childrearing environments, and children in these families showed lower cognitive performance and more behavioral problems than did other children (National Institute of Child Health and Human Development Early Child Care Research Network, 2005). What is even more detrimental to children's development is the low level of education of the daily caregivers in rural areas. Prior studies found that urban students significantly surpass their rural counterparts in Chinese literacy attainment, parental education levels, and home literacy environment and activities (Wang, Li, Wang, 2018). The mean years of schooling for grandparents is about 3 for grandfathers and 1.5 for grandmothers (Zeng & Xie, 2014). and most of the grandparents have not attended elementary school and cannot write.

Similar definitions of parenting punishment behaviors in prior research include harsh parenting (Berthelon, Contreras, Kruger & Palma, 2020; Conrad, Paschall & Johnson, 2019), maternal punishment (Miller-Slough, Zeman, Poon & Sanders, 2016; Ateah & Durrant, 2005; Liu & Wang, 2020), and abusive parenting (Milojevich & Haskett, 2018; Kim, 2009). Specific behaviors include verbal criticism, yelling, pushing and beating with objects (Holden, 2003). Prior research has shown a correlation between the educational level of the caregiver and a child's healthy physical and mental development (Padilla, Hines & Ryan, 2020). Parenting styles such as corporal punishment are more likely to be used by less-educated parents leading to externalizing problems in children. Numerous prior studies have demonstrated that harsh parenting is detrimental to children's mental health development. Harsh parenting in early childhood predicts more behavior problems in adolescence, for

example, harsh parenting by fathers increases children's aggression, while harsh parenting by mothers affects the children's emotional regulation (Chang, Schwartz, Dodge et al., 2003). The negative impact of corporal punishment on children's development is further supported by extensive research evidence (Gershoff, 2013; O'Gara et al., 2020; Lansford, Wager, Bates, et al., 2012; Taylor, Manganello, Lee & Rice, 2010; Coley, Kull & Carrano, 2014). However, corporal punishment is a common and accepted educational practice in rural China, and there are even many maxims that encourage physical punishment by parents. For example, "a filial son is born under the rod", "beating is kissing", "scolding is loving" (Li, Liao, Zhao, et al., 2012; Sun & Sun, 2013; Yang & Wang, 2016). Some studies on LBC show that grandparents respond negatively when asked if they physically punish and abuse their children, but it is clear from their responses to the questionnaire that they use corporal punishment (Yang, Liu, Yang, et al., 2020). In other words, grandparents had a positive perception of their educational approach as a way to teach children about inappropriate speech and behavior, and they did not consider severe corporal punishment as a form of child abuse. However, their positive perception of this parenting style does not change the negative effects brought to the child. Previous research suggests that parents tend to overestimate their use of praise and underestimate their use of criticism with their preschool children (Swenson, Ho, Budhathoki, et al., 2016). On the contrary, similar definitions of positive parenting behaviors in prior research include parental warmth (Wang, 2019; Moran, Turiano & Gentzler, 2018) maternal autonomy support (Matte-Gagné, Harvey, Stack, et al., 2015) and maternal rewarding response (Miller-Slough, Zeman, Poon, et al., 2016). Positive encouragement and warm emotional support from parents in the child's parenting life can have a beneficial effect on the child's emotional development (Joussemet, Koestner, Lekes & Landry, 2005; Chen, Liu & Li, 2000). For example, previous studies suggest that gentle parental encouragement may promote regulated responses in social contexts in shy toddlers. Encouragement of toddlers' autonomy and warm responsiveness to toddlers in particular, may help shy toddlers to engage with, rather than withdraw from, new people (Grady, 2019). At the same time, the children's cognitive styles will largely determine how parenting styles can affect the children's emotional development. For example, it has been documented by previous research that anxious children were more likely to pay attention to negative information, to interpret ambiguous situations as negative, and to show a preferential recall of negative words (Barrett, Rapee, Dadds, et al., 1996; Reid, Salmon & Lovibond, 2006). This finding implies that anxious children may interpret the parent's corporal punishment in a negative way; for example, a child's positive cognitive style would view the parent's corporal punishment as an educational behavior, whereas a negative cognitive style would view the parent as attacking him or her and that he or she is unloved. This leads us to a question: if parents explain their motivations for corporal punishment and rewards, can they help children improve their cognitive style, thereby mitigating the negative effects of corporal punishment and enhancing the positive effects of rewards? There is insufficient research evidence to determine which type of parenting is more effective in promoting child development in rural areas. Furthermore, in the context of corporal punishment in rural areas as a whole, it needs to be verified whether the negative effects of corporal punishment on

children's development can be mitigated if the rules of corporal punishment are clearly understood by the children at the time of punishment.

Children's emotional development is an important indicator of children's psychological health. Children are unable to express themselves well during the period when language development is not fully mature, and emotions are an important way for children to express themselves. Emotional stability means that the child is currently in a good psychological state, while emotional disturbance means that the child is under some stress in daily life. Encouragement and support from daily caregivers can help children to reduce anxiety and achieve emotional stability, while harsh parenting practices, such as corporal punishment, can cause great stress and emotional distress. Prolonged emotional distress may lead to emotional disturbance, which in turn may lead to externalizing behavioral problems. Previous studies suggested that mothers' supportive responses to negative emotions in childhood were indirectly associated with greater young-adult life satisfaction through greater young-adult positive emotional experience (Ramakrishnan, Garside, Labella, Klimes-Dougan, 2019). The longitudinal study indicated that harsh parenting was more predictive of changes in psychiatric symptoms two to three years later than child maltreatment (Calhoun, Ridenour & Fishbein, 2019). Harsh parenting was associated with elevated symptoms of early-adolescent physical aggression, social aggression, and suicidal ideation (Kingsbury, Sucha, Manion, Gilman, Colman, 2020). Moreover, prior studies have indicated several main effects such as the conclusion that child-reported maternal reward responses were associated with stronger child emotion management, whereas perceived maternal punishment and neglect were associated with poorer child emotion management (Miller-Slough, Zeman, Poon et al., 2016). The above findings suggest that harsh parenting, such as corporal punishment, can cause significant stress and emotional distress. Chronic emotional distress can lead to emotional disorders that are internalized leading to serious mental health problems. On the other hand, positive emotional support and encouragement contributes to children's better emotional regulation and achieves healthy psychological development. It remains to be confirmed by research evidence as to how positive educational behaviors such as encouragement and support and negative educational behaviors such as punishment and reprimand affect children's emotional development in parenting styles of rural area caregivers, and whether a mixture of these two educational behaviors will allow the children in their care to maintain healthy emotional development.

It is important for children to develop social skills during their preschool years. They are skills that children learn through continuous exploration as they gradually expand their lives from the familiar environment of family life to the process of contact with others. Through contact with others, children gain opportunities to play with peers through social skills and receive emotional support from them. Results from longitudinal studies suggest that social skills acquired early in childhood predict peer support later in adolescence. Prior research has found that harsh parenting styles lead to a lack of emotional regulation in children, which leads to aggressive behavior (Chang, Schwartz, Dodge, McBride-Chang, 2003), making it difficult for them to interact with their peers. In addition, emotional competence assessed at 3 to 4 years of age contributed to both concurrent and kindergarten social

competence. Even early in the preschool period, contributions of emotional competence to social competence have long–term implications（Denham, Blair, DeMulder, et al., 2003). Therefore, social competence cannot be developed without a foundation of emotional stability. The differences in the development of social skills between two different parenting styles of LBC and NLBC (non-left-behind children) in rural areas, and the correlation between children's social skills and emotional development needs to be further explored.

The purpose of this paper is to answer the following questions: What is the status of rewarding and punishing behaviors of rural parenting between LBC and NLBC and what are the effects of such parenting styles on children's emotional and social skills development? How can children's emotional development and social skills be affected if they are made aware of the rules of parenting behavior during physical punishment and rewards?

2. Methodology

(1) Participants

A total of 83 children aged 3-6 years from rural areas of Henan province and their daily caregivers participated in the present study. Henan Province is the third-largest agricultural province in China in total population. While exporting a large amount of labor to other provinces, this also leaves a large number of left-behind children. Therefore, the child-rearing situation in rural areas of Henan Province can represent the current situation of left-behind children in rural areas of contemporary China. The survey was conducted through home visits. Data in this study was for 40 boys and 43 girls, with a good gender balance and the mean age of children was 58.66 months (*SD* = 17.42).

(2) Procedure

The questionnaire was conducted in January 2019. As some grandparents were illiterate, all questionnaires were read consistently by the investigator and answered verbally by the primary caregiver who knew the child best. The daily primary caregivers in this study were grandmothers for LBC and the mothers for NLBC, then the answers were recorded by investigator. First, the researchers explained the details of the survey and the written informed consent form was signed by the daily caregivers of the children. Caregivers who agreed to participate in the study signed the consent form and completed the questionnaires.

(3) Measures

In this study, the questionnaire contained four parts: demographic information, a Rewarding and Punishing Behavior checklist, the Preschool Anxiety Scale (PAS), and the Social Skill Scale.

Demographic information included family structure: daily caregivers, children’s ages, gender and number. Data coding was by a hierarchical regression model as Gender: boy=1, girl=0; Siblings:

one child=1, have siblings=0; Daily caregivers: grandparents=1, parents=0. Caregivers' education level: Illiterate=0, elementary school=1, middle school=2, high school=3, college and above=4.

The Rewarding and Punishing Behavior checklist included 2 subscales:

1. Standards of Reward and Punishment, such as "I have a clear understanding of the standard for reward and punishment"; "When I reward or punish the child, I explain why"; "I try to let the child understand and remember the reason for the reward or punishment". Responses were rated on a four-point scale (from 1 = "Not at all" to 4 = "a lot"). The total score of the 3 questions is the score of the Standards of Reward and Punishment and a higher score indicates clearer standards for reward and punishment.

2. Frequency of Punishment:"How often have you given punishment in the last two weeks?" Responses were rated on a five-point scale (from 0 = "Never" to 4 = "Every day").

The Preschool Anxiety Scale (PAS) consists of 28 scored anxiety items (Items 1 to 28) that ask the parents to report on the frequency of which an item is true for their child (Spence, Rapee, McDonald & Ingram, 2001). In this study, three of these subscales, including Social Anxiety, Generalized Anxiety, and Separation Anxiety with 16 items were selected to reduce the burden on responders. Items were rated on a five-point scale (from 0 = "not at all" to 4 = "very often true"). The child's primary daily caregiver was asked to make assessments and select appropriate items based on the actual situation in the last two weeks. A higher score indicated higher emotional anxiety of the child. PAS was validated in China and demonstrated adequate reliability and validity (Wang, Zhao, 2015). In this study, the internal consistency of the scales was reliable and valid (α =.809).

The scale used to measure children's social skills, containing 30 items, was conducted with 3 subscales (Takahashi, Okada, Hoshino, Anme, 2008), Self-performance, Self-control and Coordination. Higher scores indicate that children develop advanced social skills. In this study, the scale was rated on a three-point scale (from 1 = "not at all" to 3 = " a lot "). The social skills scale was developed with the questionnaire being answered by the child's caregiver in the childcare center, and this study considers that it is also consistent with the scale being used by the child's primary daily caregiver to answer. The internal consistency of the scale was .912 in this study.

3. Results

(1) Differences in Child Development between Grandparenting and Parenting

As shown in Table 1, the gender, age, and the number of children had no significant difference between the LBC and NLBC groups, but there was a significant difference in the education of the children's daily caregivers (χ^2= 32.20, p< .01), with the NLBC group having a higher level of education than the LBC's daily caregivers. In the present study, there were 54 caregivers who were grandparents, and 23 of them had not had any education at all. The LBC had higher scores than the NLBC on the PAS overall, and each of the subscales, Social Anxiety, Generalized Anxiety, and Separation Anxiety (t= 3.03, p< .01; t= 2.40, p< .01; t= 2.89, p< .01; t= 2.27, p< .05), indicating that LBC have worse

emotional development than NLBC. They tend to be anxious in various scenarios. There were no significant differences between LBC and NLBC on the standards of reward and punishment, frequency, and social skills scores, indicating that the same cultural background of rural education did not show differences in reward and punishment as well as social skills development due to differences in daily caregivers.

Table 1 Differences between LBC and NLBC

	LBC(N=54)		NLBC(N=29)		
	N	*%*	*N*	*%*	*χ2*
Child's gender					
boy	30	36.14%	10	12.05%	3.36
girl	24	28.92%	19	22.89%	
Siblings					
one child	16	45.78%	6	27.71%	.77
have siblings	38	19.28%	23	7.23%	
Caregiver's education level					
Illiterate	23	27.71%	1	1.20%	32.20**
elementary school	14	16.87%	3	3.61%	
middle school	13	15.66%	8	9.64%	
high school	3	3.61%	15	18.07%	
college and above	1	1.20%	2	2.41%	
	M	*SD*	*M*	*SD*	*t*
Child's age	57.37	15.81	61.07	20.17	-.92
Social Anxiety	13.33	3.69	11.17	4.29	2.40*
Generalized Anxiety	9.69	3.59	7.48	2.71	2.89**
Separation Anxiety	9.89	3.60	8.03	3.47	2.27*
PAS	32.91	8.84	26.69	9.07	3.03**
Clear rules for punishment	7.20	3.19	5.79	2.13	2.13*
Punishment rate	6.50	2.77	5.48	1.99	1.75
Clear rules for rewards	6.96	3.78	6.03	2.92	1.15
Rewards rate	2.76	1.26	2.79	1.32	-.115
Social skills	71.15	10.78	73.72	10.24	-1.06
Self-performance	25.74	3.54	26.83	3.64	-1.32
Self-control	26.19	4.58	27.07	4.43	-.85
Coordination	19.22	5.02	19.83	5.22	-.52

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

(2) Analysis of Correlations

Considering that emotional competence and social skills in children are developed with age, the correlations between age, the PAS and social skills were analyzed for all samples, and it was found that age was positively correlated with social skills (r=.27, p< .05) and there was no significant correlation with PAS (r= -.01, p= .95). For the controlling effect of age, the correlations between caregivers' reward and punishment behaviors and children's social skills and PAS were analyzed separately in the LBC and NLBC groups (see Table 2).

Table 2 The correlation between PAS,Social skills and Rewarding and Punishing Behaviors

Control variable: Age	1	2	3	4	5	6	7	8	9	10	11	12
1.Social Anxiety	1	.60**	.65**	.90**	.15	-.04	-.01	-.21	-.70**	-.70**	-.76**	-.26
2.Generalized Anxiety	.47**	1	.65**	.83**	.30	.03	-.13	-.11	-.44*	-.49**	-.45*	-.15
3.Separation Anxiety	.41**	.59**	1	.87**	.47*	.03	.08	.08	-.50**	-.69**	-.59**	-.01
4.PAS	.77**	.85**	.82	1	.33	-.00	-.01	-.11	-.65**	-.74**	-.72**	-.17
5.Clear rules for punishment	.16	.11	.05	.13	1	-.08	.32	.09	-.28	-.34	-.11	-.22
6.Punishment rate	.09	.22	0.2	.21	.40**	1	.11	-.20	.00	.01	-.11	.09
7.Clear rules for rewards	.22	-.14	-.11	-.01	.21	.02	1	-.15	.04	.05	.03	.02
8.Rewards rate	-.19	.19	.27	.11	-.06	.18	-.35*	1	.28	.10	.28	.24
9.Social skills	-.12	-.00	.24	.05	-.36**	-.24	.03	.44**	1	.81**	.77**	.75**
10.Self-performance	-.12	.04	.11	.01	-.17	-.09	-.05	.31*	.67**	1	.61**	.38*
11.Self-control	-.14	-.14	.13	-.06	-.33*	-.30*	.08	.35*	.87**	.42**	1	.25
12.Coordination	-.04	.10	.31*	.16	-.34*	-.18	.04	.40**	.85**	.31*	.62*	1

*, p<.05; **, p<.01; Correlation coefficients in LBC(N=54) are presented below the diagonal and correlation coefficients in NLBC(N=29) are presented above the diagonal.

Clear rules for punishment were negatively correlated with children's social skills, self-control, and coordination in LBC group (r= -.36, p< .01; r= -.33, p< .05; r= -.34, p< .05). There was a negative correlation between the Punishment rate and self-control (r= -.30, p< .05). There was a positive correlation between the Rewards rate and the children's social skills, self-performance, self-control, and coordination (r= .44, p< .01; r= .31, p< .05; r= .35, p< .05; r= .40, p< .05). There was a positive correlation between Separation Anxiety and Coordination (r= .31, p< .05). In the NLBC group, there was a positive correlation between Clear rules for punishment and Separation Anxiety (r= .47, p< .05). There was a negative correlation between the full scale of PAS and Social skills, self-performance, and self-control, in children.

In short, in the LBC group, the clearer the rules for punishment criterion were, the poorer the children's social skills were, and the higher the frequency of punishment was, the weaker the children's self-control was. In contrast, a higher frequency of rewards correlated to better social development. Children with high separation anxiety were more likely to show more collaborative behavior with their peers. In the NLBC group, clearer rules for punishment criteria correlated to higher separation anxiety, and poorer emotional development correlated to the poorer overall development of social skills.

(3) Hierarchical Regression Results

Table 3 Hierarchical regression analysis of Rewarding and Punishing Behaviors

			PAS			
	Step1		Step2		Step3	
Variable	*B(SEB)*	*β*	*B(SEB)*	*β*	*B(SEB)*	*β*
Gender	2.09(2.00)	.11	2.60(2.00)	.14	2.79(2.04)	.15
Sibling	4.56(2.21)	.22*	4.36(2.23)	.21	4.43(2.26)	.21
Caregiver	5.55(2.59)	.28*	4.94(2.60)	.25	5.22(2.69)	.27
Children's age	.00(.06)	.01	.01(.06)	.03	.02(.06)	.04
Caregivers' education level	-.48(1.00)	-.06	-.31(1.04)	-.04	-.24(1.11)	-.03
Clear rules for punishment			.56(.36)	.18	.62(.37)	.19
Punishment rate			.22(.42)	.06	.23(.43)	.06
Clear rules for reward					-.20(.32)	-.08
Reward rate					-.05(.89)	-.01
Adjusted R^2		.17*		.21*		.21*
ΔR^2				.04		.01
			Social Skill			
Gender	-.48(2.36)	-.02	-1.45(2.28)	-.07	-2.03(2.05)	-.10
Sibling	.65(2.62)	-.03	-.26(2.54)	-.01	-1.35(2.27)	-.06
Caregiver	-.12(3.06)	-.01	1.04(2.96)	.05	-1.37(2.70)	-.06
Children's age	.17(.07)	.28*	.16(.07)	.25*	.19(.06)	.31**
Caregivers' education level	1.24(1.19)	.14	.95(1.19)	.11	-.64(1.11)	-.07
Clear rules for punishment			-1.07(.41)	-.30*	-1.19(.38)	-.33**
Punishment rate			-.39(.48)	-.09	-.73(.44)	-.18
Clear rules for reward					.84(.32)	.28**
Reward rate					3.99(.89)	.48**
Adjusted R^2		.03		.12*		.30**
ΔR^2				.10*		.18**

*: $p<.05$; **: $p<.01$; Gender: boy=1, girl=0; Siblings: one-child=1, have siblings=0; Caregiver: grandparents=1, parents=0

For the analysis of the correlation between the education of the caregivers, Rewarding and Punishing behavior, it showed that education of the caregivers was negatively correlated with Punishment rate (r= -32, p< .01), and positively correlated with Rewards rate (r= .22, p< .05). There was no correlation between the education of the caregivers and the standards of Rewards and Punishment (r= -.05, p= .69; r= -.14, p= .22). This indicates that a higher education of caregivers leads to a lower frequency of punishment behavior and a higher frequency of reward behaviors. To analyze the prediction of reward and punishment behaviors on emotional and social development, demographic factors were devoted in the first step of a hierarchical regression to controlling for their effects on emotional and social development. The results showed (see Table 3) that Sibling and Caregiver were positively associated with children's emotional development in Step 1 (β= .22, p< .05; β= .28, p< .05). The adjusted explanatory amount of the regression R^2 was 17%, while the Sibling and Caregiver did not emerge as significant predictors of children's PAS after putting the clearer rules for punishment and punishment rate in Step 2 (β= .21, p> .05; β= .25, p> .05), and although the adjusted explanatory amount of the regression R^2 for the variable reached 21%, the addition of explanatory amount ΔR^2 was not significant (ΔR^2 = .04, ΔF=(2, 82)=1.755, p> .05), and after entering clearer rules for reward and reward rate in Step 3, still do not affect children's PAS significantly(β= .21, p> .05; β= .27, p> .05) and the addition of explanatory amount ΔR^2 was not significant (ΔR^2 = .01, ΔF=(2, 82)=.22, p> .05).

For children's development of social skills, Children's age was positively associated with children's social skill development in Step 1 (β= .28, p< .05). The adjusted explanatory amount R^2 was 3%. Clear rules for punishment and Punishment rate were entered in Step 2 and Clear rules for punishment had a significant effect on children's social skills (β= -.30, p< .05), The adjusted explanatory amount R^2 reached 12% with a significant addition of explanatory amount (ΔR^2 = .10, ΔF= (2, 82) =4.78, p< .05). In Step 3, Clear rules for reward and Reward rate were entered and both were positively associated with children's social skills (β= .28, p< .01; β= .48, p< .01), the amount of explanation R^2 reached 30%. The addition of explanatory amount ΔR^2 between Steps 2 to 3 was significant (ΔR^2 = .18, ΔF= (2, 82) =10.79, p< .01).

4. Discussion

(1) LBC Group Versus NLBC Group

The educational level of caregivers was low, which was consistent with prior studies, and the children's grandparents in rural China had a lower level of education than the children's parents. Most grandparents did not complete elementary school and had a high illiteracy rate. There was no significant difference in the standardization and frequency of reward and punishment type parenting behaviors between the LBC and the NLBC. However, the caregivers who had a higher education level correlated to children with more rewarding behaviors and less punishing behaviors to correct children's misbehavior. This suggests that although punishing behaviors are acceptable in rural societies and

cultures, the caregivers with higher education levels are able to be less emotional in their parenting behaviors and more rational in appropriately addressing their children's misbehavior.

Additionally, in the LBC group, where the primary caregiver was the grandmother, the standards for punishing behavior were more explicit than the parents in the NLBC group. This may be due to the fact that grandparents have more parenting experience than parents and are more aware of the punishment standards for their children, so they do not simply express that child's behavior is wrong by punishing behavior, but rather create standards and let the child know why he/she is being punished and encourage the child not to repeat the same misbehavior anymore.

(2) The Development of PAS

For children's emotional development, previous studies have pointed that regarding gender differences between boys and girls, the girls showed a significant advantage in Theory of Mind (ToM) performance than the boys (Calero, Salles, Semelman, Sigman, 2013), but they also showed more generalized anxiety and separation anxiety. (Orgilés, Méndez, Espada et al., 2012). However, the gender differences of the children in this study did not emerge as a predictor of emotional development. In addition, children without siblings and those raised by grandparents showed more emotional anxiety. Prior research has revealed that a child with siblings will have better development of ToM than an only child (Kennedy, Lagattuta, Sayfan, 2015), which may be one of the reasons why children in big families have less emotional anxiety, and children's anxiety generated by life environment stimulation such as strangers and parent-child separation in daily life can be alleviated by emotional support from siblings. Although correlation analyses indicated that the caregivers with a higher education correlated to less punishing behaviors, neither the education level nor the punishing behaviors of the caregiver predicted a child's emotional development, suggesting that children's anxiety was not directly affected by punishing behaviors. Additionally, as grandparenting was found to be associated with more severe emotional anxiety, it can be inferred that LBC raised by grandparents experienced parent-child separation and exhibited more emotional anxiety. It is consistent with a prior study that the negative impact of parent-child separation on emotional development during early childhood can be profound (Shi, Wang, Li et al., 2021; Xu, Yan, Chen, et al., 2018; Liu, Li, Ge, 2009). In NLBC, emotional stability is a prerequisite for the development of social behavior, and the children can make good use of their caregiver's secure base to remove anxiety and develop advanced social skills. In contrast, the relationship between emotional development and social skills was more complex in the LBC group. For children with high separation anxiety in the LBC group, peer coordination was instead stronger, probably because the only way to gain positive feedback in peer relationships is by actively assisting peers in an activity, and the peer support harvested in an activity will help the children to eliminate their separation anxiety to some extent by simulating the siblings' function. LBC needs to reestablish new attachments with their grandparents after parental separation from their mothers, which requires a prolonged process. Therefore, it may not be possible for LBC to use the functions of a secure base

to eliminate anxiety as NLBC do, and so they depend on the emotional support of peers and siblings. The association between standards of punishment and separation anxiety in the NLBC group may be due to the parental threatening behaviors that are often used by parents to make the children understand the standards of punishment in rural areas (Zheng, 2011; Zhang, 2014), For example, "Mother said she would stop taking care of me if I did not behave like that", "If you do that again, I won't want/love you anymore". These threatening responses can have a negative impact on children's internalized emotional development (Trent, Viana, Raines, et al., 2019). In this study, it is indicated that parental threatening behaviors can make separation anxiety emerge in children aged 3-6 years. In contrast, no similar correlations were found in the LBC group, as children are actually experiencing parental separation, and the caregiving grandparents do not say such threatening words. In the hierarchical regression analysis, the caregiver and siblings did not affect PAS significantly in Step 2 and Step 3, possibly because there was an interaction between the category of caregiver, the number of siblings and rewarding/punishing behavior. It is also possible that the effect was not statistically significant due to the small sample size.

(3) Development of Social Skills

Parental education did not have a direct effect on the children's emotional and social skill development but was related to the frequency of rewards and punishments. The frequency of rewards and punishments directly influenced the development of the children's social skills, which indicated that a higher educational level could influence the caregiver to engage in parenting behaviors that were more rewarding and less punishing, thus indirectly affecting the development of children's social skills. Parenting behaviors may be mediating factors that moderate the effect of educational level on children's social skills. This suggests that rural caregivers can promote children's social skills development through beneficial parenting behaviors even if they have lower educational levels. The children's age is also one of the critical predictors. As children grow up and their physical and language development gradually improves, they can better express their feelings and effectively control their behavior. When children enter kindergarten, they experience more group life and are exposed to new friends of the same age in their daily lives in addition to their caregivers, which makes it possible for children to develop their social skills in a richer environment (Johnson, Ironsmith, Snow, et al., 2000).

In addition, the frequency of punishment did not affect social skills, but a clear punishment standard was a significant predictor of social skills. There are two possible reasons for this. Firstly, because the questionnaire was used to read out the questions and receive responses from the participants, it may be because the responses of caregivers were biased toward "social expectations". The study approach of asking about the standard and frequency of rewards and punishments through self-reports may lead to some bias in the results, as caregivers perceive that punishing their children is not beneficial to them but are unwilling to admit that they have physically punished children. However, the clear standard of punishment was regarded as positive. The results suggested that even when the

standards of punishment were clear, they had a negative effect on the children's social skills. It may be possible that caregivers who are clear about punishment standards have engaged in physical punishment but do not accurately report the frequency of their own physical punishment. Secondly, it could be because when the parent is making the rules of punishment clear to the child, the parent is still using a negative approach, for example, making children understand the rules of punishment by threatening that child will be punished by the caregiver if he/she repeats the misbehavior. Also, if speaking loudly and reasoning with a negative emotion, even though it is just explaining the rules of punishment, the negative emotion in this parenting process can panic the child and they will be unable to understand the rules of the parenting. When a caregiver explains the standards of punishment, although the purpose is to educate, the educational act itself is a rejection of child's behavior, which may lead to the child withdrawing from other social situations and not being able to communicate and coordinate well. However, the responses to the standards of reward and the frequency of reward were consistent, with clear standards of reward and higher frequency of reward resulting in better social skills for the child. This indicated that encouraging and supportive parenting behaviors affirm children's own behaviors, and when children engage in behaviors that meet the parent's expectations, the parent provides motivation by explaining the reasons for rewarding behaviors, and positively reinforces behaviors through a high frequency of rewarding, thus enabling children to better express and control their behaviors, and therefore exhibit more coordinated behaviors in social communication and peer relationships. This promotes the positive development of social behavior. Regardless of the fact that children's social skills develop with age, rewarding behaviors can still contribute to children's emotional development and social skills, excluding the effect of age, which indicates that rewarding behaviors have a direct effect on the development of children's social behaviors.

(4) Limitations

Given that previous studies have shown that there was no significant difference in age of parents (Fan, Su, Gill & Birmaher, 2010) or in family economics between LBC and NLBC (Zhou, Zhao, Qi et al., 2020; Su, Li, Lin, Xu & Zhu, 2013), this study did not examine the effects of the two factors on children’s social adjustment. However, the interaction effect might exist between these demographic variables and caregivers' rewarding/punishing behavior. It is necessary to investigate the effect of rewarding/punishing behavior combining these demographic variables in the future.

In addition, due to the low educational level of most grandparents, they were unable to read the questionnaires themselves and so could not complete them, which led to considerable difficulties in increasing the sample for this study, and this measurement may have caused potential bias in the questionnaire results. The sample data obtained did not directly support a causal relationship between rewarding and punishing behaviors on children's emotional and social development. Secondly, the effect of children's own perception of rewarding and punishing behaviors is not considered in the measurement process of rewarding and punishing behaviors. If children have a positive perception of

the punishing behavior of their caregivers, they are able to psychologically accept their caregivers' punishment when they misbehave themselves and it does not have a negative effect on their mental health. Thus, children's perceptions may be an intermediate variable between the parenting behavior of the caregiver and the child's emotional development. Further research exploring the association between parenting behaviors, children's perception approaches, and children's emotional development will be considered in future studies.

5. Conclusion

This study compared the differences in emotional and social skills development between LBC and NLBC aged 3-6 years by using questionnaires and investigated the association between rewarding and punishing behaviors of caregivers and children's emotional and social skills development in rural China. Results indicated that although the grandparents had significantly lower levels of education than the parents, the educational level of the caregivers did not emerge significantly as a predictor of the children's emotional anxiety. Children raised by their grandparents experienced more emotional anxiety, but there was no association between this emotional anxiety and parenting behaviors such as rewards and punishments by caregivers. It is suggested that emotional anxiety may result from LBC experiencing parent-child separation, and that siblings in big families can help children to alleviate emotional anxiety. It suggests that further research or intervention should pay more attention to those who are the only child among LBC. Meanwhile, the clearer the standards of the punishment were, the more they discouraged the development of children's social skills. Clear punishment standards by caregivers did not contribute to the development of children's social skills, and it is speculated that this may be due to the negative approach of caregivers in educating children about punishment standards, while rewarding behaviors were conducive to the development of children's social skills. As a result of these findings, this study has further evidenced the negative effects of punishing behaviors on children aged 3-6 years and confirmed the benefits of parenting behaviors such as rewarding. Therefore, for improving children’s social skills and emotional development, we suggest that caregivers use more encouragement and less punishment in daily life.

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