

## The Relationship between Shyness and Externalizing problem in Chinese Preschoolers: The Moderating Effect of Teacher-child Relationship\*

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### Abstract

The current study explored the role of teacher-child relationship plays on the relationship between preschooler's shyness level and externalizing problem. The sample consisted of 463 children from 6 preschools of Shandong province in northern China. Mothers reported the shyness level, aggressive behavior, and attention problem of their children, whereas teachers rated the teacher-child relationships. Among the results, the shyness level of girls were significantly higher than that of boys; children's age was significantly and negatively correlated with parents' rating of child shyness, aggressive behavior, and attention problem; shyness was associated with more aggressive behaviors, more attention problems, higher teacher-child dependence, higher teacher-child conflict, and lower teacher-child closeness. The aggressive behavior was associated with higher teacher-child dependence and higher teacher-child conflict. Teacher-child closeness moderated the relationship between shyness and externalizing problem (including aggressive behavior and attention problem). Teacher-child dependency moderated the relationship between shyness and aggressive behavior.

**Keywords:** shyness, externalizing problem, teacher-child relationship, moderating effect, preschooler

### 1. Introduction

Shyness is the caution and anxiety that people felt in face of novel social situations/objects or social evaluation, mainly for the avoidance of conflicts in the context (Rubin, Coplan, & Bowker, 2009). Shyness in children has been defined as tension and fear when faced with strangers or unfamiliar situations (Han, Wu, & Gao, 2014a). A survey has shown that the percentage of American people who has a chronic shyness and suffering from that in daily life has reached 40%. In China, some investigations have shown that the experience of shyness is more common in China (Chen, Gao, & Wu, 2013).

Generally speaking, moderate shyness is regarded as a normal reaction, but excessive shyness is associated with many problems when children are in the school surroundings (Coplan, Arbeau, & Armer, 2008). For example, shy children who show low social skills tend to be anxious and withdrawn from social interactions in social settings (Coplan, Closson, & Arbeau, 2007; Erwin, 2007). Shy children are more prone to peer rejection, is further associated with self-esteem, loneliness, anxiety, hostility, and negative emotional problems (Mowrer & Parker, 2004; Nelson, Padilla-Walker, & Badger, 2008; Wang, Wang, Han, Gong, & Gao, 2009). Shy children are tend to be more dependent on the teacher, which does not favor the establishment of good teacher-child relationship and peer relationship (Wu, Chen, Yu, Wu, & Gao, 2014; Kimberley, Coplan, & Weeks, 2010). Shyness has a negative correlation with positive emotions (Erwin & Pressler, 2011; Han, et al., 2014a). In addition, shyness is closely connected with children's antisocial behavior (Cortney, Evans, & Larry, 2012); shyness also has an obviously negative impact on abiding by the social rules and the aggressive behavior (Han, Wu, & Gao, 2014b).

Although many studies indicated that shyness is closely related to children's problem behavior, there is also evidence that not all shy children have problem behaviors. There are many factors which have positive or negative moderating effect between shyness and children's problem behavior. For example, Coplan and Weeks (2009) reported that parenting style had a moderating effect between child shyness and adjustment problems. Kimberley et al. (2010) reported that peer rejection had a long-term impact on shy children. Oh et al. (2008) found the important moderating role of peer friendship between shyness and their externalizing behaviors. Findlay and Coplan (2008) found that participation in organized sports activities has a protective effect on the shy children. In addition, Kimberley et al. (2010) also found that teacher-child relationship have an important moderating effect on shy children's social adjustment problems. Although a variety of researches have been conducted on shyness, teacher-child relationship and problem behavior, it is worth noting that the above researches mainly focused on the influences of shyness on individual's internalizing problem, and it involves little research on their externalizing problem. In addition, the researchers mainly focused on school-age children while neglected the early childhood children. What's more, as one of the most important interpersonal relationship of children, teacher-child relationship may play an important role on the relationship between children's shyness and externalizing problem. However, this issue has not been clearly discussed. Thus, the current study aims to explore the relationship between shyness, externalization and teacher-child relationship among the preschool children in China.

## 2. Method

### 2.1 Participants

The participants were selected from 6 preschools of Shandong province in northern China. Cluster random sampling was used and 500 sets of scales were handed out (500 mothers and 28 preschool teachers participated in this survey, and all participating teachers are female). The data of 37 subjects were deleted for incomplete data. So there were 463 participants for the final data analysis (264 boys, 199 girls). In the 3-year-old group, there were 125 children, contained 63 boys ( $M$  age=3.44 years,  $SD$ =0.26 years) and 62 girls ( $M$  age=3.48 years,  $SD$ =0.26 years). In the 4-year-old group, there were 190 children, contained 120 boys ( $M$  age=4.36 years,  $SD$ =0.21 years) and 70 girls ( $M$  age=4.35 years,  $SD$ =0.20 years). In the 5-year-old group, there were 148 children, contain 81 boys ( $M$  age=5.27 years,  $SD$ =0.18 years) and 67 girls ( $M$  age=5.33 years,  $SD$ =0.20 years).

### 2.2 Measures

*Child Shyness.*—We used the shyness subscale of the Child Social Preference Scale, which displayed good psychometric properties and indications of strong construct validity in previous studies, and this scale has been used with samples of Chinese preschool children (Wu, Wu, Chen, Han, Han, Wang, *et al.*, 2015). The shyness subscale has seven items rated on a 5-point scale ranging from “1=definitely does not apply” to “5=definitely applies” (Cronbach's  $\alpha$ =0.85 in the current sample. Sample items: My child often looks at others in distance, but don't get close to them. My child seems to want to play with others, but is sometimes nervous ). The scale score was computed as a sum of all items, therefore higher scores indicate a higher shyness level.

*Externalizing problem.*—We used the externalizing problem subscale of the Child Behavior Checklist-Parent Edition to evaluate externalizing problems. The scale has been used with samples of Chinese preschool children (Dong, 2014). It consists 24 items and contains two dimensions: aggressive behavior (19 items, sample items: physically attacks people, gets in many fights) and attention problem (5 items, sample item: wanders away, can't concentrate, can't pay attention for long). Cronbach's  $\alpha$  for the two dimensions of the subscale were 0.84 and 0.52 respectively. It rated on a 3-point scale ranging from “0=not true” to “2= very true”. Scores were sum of all items within each subscale to obtain a score for each dimension.

*Teacher-child relationship.*—The STRS (Pianta, 2001) is a frequently used scale for measuring teachers' perceptions of their relationships with children. The Chinese version of the STRS has shown adequate reliability and validity (Wu *et al.*, 2015). The STRS consists 28 items and contains three factors: Closeness (11 items, sample item: I have a close relationship with the child and have deep feelings), Conflict (12 items, sample item: The child is easy to get angry with me), and Dependence (5 items, sample item: The child is too dependent on me). Cronbach's  $\alpha$  for these three subscales in the current sample were 0.77, 0.78, and 0.57 respectively. Responses were recorded on a 5-point scale ranging from “1=definitely does not apply” to “5=definitely applies”. Scores were sum of all items within each subscale to obtain a score for each dimension.

### 2.3 Procedure

First, teachers evaluated their relationship with each child by completing the STRS for each of the participating children in their classes, and then mothers evaluated the shyness level and externalizing problem of their children.

2.4 Analysis

We first examined the entry errors and missing values of the data and these were treated with listwise deletion of cases. Then we did the descriptive statistics analysis of shyness, aggressive behavior, attention problem and teacher-child relationship, as well as the differences between sexes and among ages in the main variables. Next a partial correlation matrix (controlling for child gender and age) was computed. Then three hierarchical multiple regressions were conducted to explore the moderating role of teacher-child relationship in associations between shyness and externalizing problem. Finally, we conducted simple slope analysis to further explore the moderating effect of teacher-child relationship between shyness and externalizing problem.

3. Results

3.1 Preliminary Analyses

Table 1 displays the descriptive statistics of shyness for scores on the scale: Shyness externalizing problem and teacher-child relationship among preschoolers. In order to examine the differences of parents' rating of shyness, Teacher-Child relationship and externalizing problem in terms of sex, the independent samples *t*-test was used. Shyness scores for girls were significantly higher than that for boys ( $t=2.28, p<0.05$ ). However, there were no significant differences in Teacher-Child relationship and externalizing problem between boys and girls. Results from correlation analysis indicated that children's age was not significantly correlated with teachers' rating of teacher-child relationship. However, children's age was significantly and negatively correlated with parents' rating of shyness ( $r(461) = -0.164, p<0.01$ ), aggressive behavior ( $r(461) = -0.173, p<0.01$ ), and attention problem ( $r(461) = -0.099, p<0.05$ ).

Table 1. Descriptive Statistics of Child Shyness, Externalizing Problem and Teacher-child Relationship

	min	max	mean	std
Child shyness	1.000	4.710	2.498	0.745
Aggressive behavior	0.000	1.680	0.557	0.309
Attention problem	0.000	1.600	0.713	0.375
Closeness	1.820	4.550	3.672	0.487
Dependence	1.400	4.800	2.828	0.573
Conflict	1.250	4.420	2.343	0.530

3.2 Partial Correlations

Shyness, externalizing problems, and teacher-child relationship all differed significantly with respect to age and sex, therefore, we controlled these two factors and conducted partial correlation analysis. The findings indicated that parents' rating of child shyness was significantly and positively correlated with their rating of children's aggressive behavior and attention problem. Child shyness was significantly and negatively correlated with teachers' rating of close teacher-child relationship, but positively correlated with dependent and conflict teacher-child relationship. Teachers' rating of aggressive behavior was significantly and positively correlated with the dependent and conflict teacher-child relationship, and the attention problem was positively correlated with the conflict teacher-child relationship (see Table 2).

Table 2. Partial Correlations between Child Shyness, Externalizing Problem and Teacher-child Relationship

	1	2	3	4	5	6
1 Child shyness	—					
2 Aggressive behavior	0.188***	—				
3 Attention problem	0.197***	0.548***	—			
4 Closeness	-0.254***	-0.062	-0.029	—		
5 Dependence	0.194***	0.171***	0.010	0.289***	—	
6 Conflict	0.310***	0.260***	0.099*	-0.160**	0.473***	—

Note: \*  $p<0.05$ , \*\*  $p<0.01$ , \*\*\*  $p<0.001$  (same below)

### 3.3 Hierarchical Multiple Regression Models

Table 3. The Moderating Effect of Teacher-child Relationship between Child Shyness and Aggressive Behavior

Predictors	Step 1	Step 2	Step3
	$\beta$	$\beta$	$\beta$
Child gender	-0.085	-0.073	-0.105*
Child age	-0.174 **	-0.145**	-0.137**
Child shyness		0.110*	0.090
Closeness		-0.022	- 0.080
Dependence		0.065	0.107
Conflict		0.188***	0.192***
Child shyness $\times$ closeness			0.112*
Child shyness $\times$ Dependence			0.209***
Child shyness $\times$ Conflict			-0.056
R <sup>2</sup>	0.038	0.118	0.179

The current study applied hierarchical multiple regressions to test the moderating effect of teacher-child relationship (including three factors: closeness, Dependence and conflict). The control variable entered in the first step (sex and age), the predictor variables entered in the second layer (child shyness, closeness, dependence and conflict), and the interaction entered in the third step. The results of the regression analysis show that conflict teacher-child relationship has a significant relationship with parents' rating of aggressive behavior, and child shyness with parents' rating of attention problem. The teachers' rating of close and dependent teacher-child relationship play a moderating role between child shyness and aggressive behavior, while the close teacher-child relationship play a moderating role between child shyness and attention problem (see Table 3 and 4).

Table 4. The Moderating Effect of Teacher-child Relationship between Child shyness and Attention Problem

Predictors	Step 1	Step 2	Step3
	$\beta$	$\beta$	$\beta$
Child gender	0.018	0.040	0.019
Child age	-0.100 *	-0.063	-0.061
Child shyness		0.206***	0.191***
Closeness		0.063	0.016
Dependence		-0.089	-0.064
Conflict		0.088	0.095
Child shyness $\times$ closeness			0.143**
Child shyness $\times$ Dependence			0.056
Child shyness $\times$ Conflict			0.056
R <sup>2</sup>	0.006	0.043	0.072

In order to further explore the moderating effect of close teacher-child relationship between child shyness and externalizing problem, we conducted simple slope analysis. First, two groups are divided with regards to one standard deviation below and above the mean score of closeness. The result of simple slope analysis (Figure 1 and 2) showed that shyness was significantly and positively associated with the aggressive behavior and attention problem among children with a less close teacher-child relationship (simple slope=0.123,  $t(461)=2.767$ ,  $p<0.01$ ; simple slope=0.228,  $t(461)=4.024$ ,  $p<0.001$ ), while the relationship between them was not significant among children with a closer teacher-child relationship (simple slope=-0.048,  $t(461)=-1.098$ ,  $p=0.273$ ; simple slope=-0.036,  $t(461)=-0.640$ ,  $p=0.523$ ). In addition, in order to investigate the moderating effect of the dependent teacher-child relationship between child shyness and aggressive behavior, we also conducted a simple slope analysis. The result (Figure 3) show that shyness was significantly and positively associated with the aggressive behavior among children with a more dependent teacher-child relationship (simple slope=0.179,  $t(461)=3.956$ ,  $p<0.001$ ), while shyness was significant and negatively associated with the aggressive behavior among children with a less dependent teacher-child relationship (simple slope=-0.105,  $t(461)=-2.190$ ,  $p<0.05$ ).

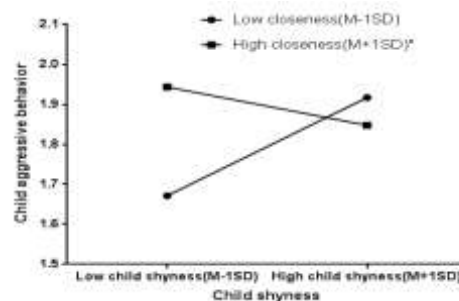


Figure 1. Interaction of Child shyness  $\times$  Closeness of Teacher-child Relationship

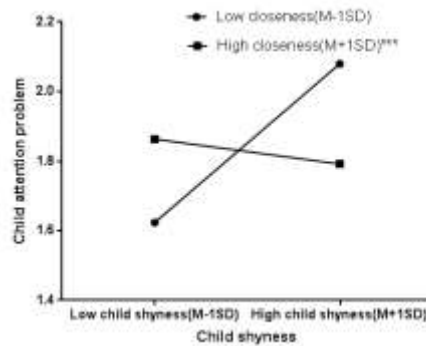


Figure 2. Interaction of Child Shyness × Closeness of Teacher-child Relationship

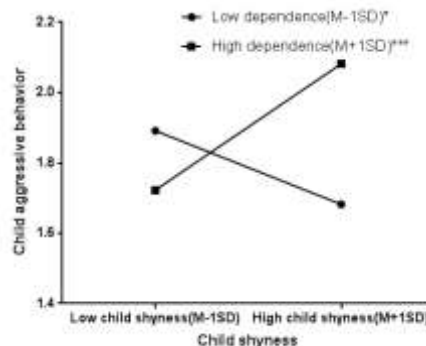


Figure 3. Interaction of Child Shyness × Dependence of Teacher-child Relationship

#### 4. Discussion

The current study showed that the shyness level of girls was significantly higher than that of boys, which is consistent with some of the previous researches with the same age (Wu *et al.*, 2015). Researchers have suggested this difference may be due to the different parenting styles as well as different culture approval effects toward boys and girls. Secondly, child shyness level decreased with increasing age, and this result is not consistent with the development trend of shyness in other age groups. Some previous studies have already shown that shyness showed an increasing trend in elementary school, junior middle school and high middle school, but when it comes to the university stage, it is basically stable (Chen, 2013). The possible reason for this difference is that the shyness of primary and secondly school students derived from the development of self-awareness and self-evaluation capacity, which developed until the late childhood (Han, *et al.*, 2014b). Meanwhile, the changes and adaptation of early childhood environment (i.e., from home to kindergarten) may be the main reason affecting their shyness level. It appears that the development process of child shyness may feature as “U”, and the downward trend is likely to continue until the lower grade stage of the elementary school.

The results of current study show that the child shyness was significantly and positively correlated with the child aggressive behavior and the conflict teacher-child relationship, which was consistent with some of the previous researches (Kimberley, *et al.*, 2010; Han, *et al.*, 2014b). The main reason of this phenomenon may result from the distinctive psychological and behavioral characteristics of shy children. Shyness is a kind of social avoidance. Shy children often lack the necessary social interpersonal skills (Han, *et al.*, 2014a). Therefore, it is easy for them to form a conflict relationship with teachers and appear aggressive behaviors with peers in the process of communication. Secondly, though shy children behave more quiet and obedient in unfamiliar environment, there is also evidence that they are more indulgent, and not following the social rules in the familiar environment, which is also an important reason that leads to the aggressive behavior and conflict teacher-child relationship (Han, *et al.*, 2014b). In addition, shy children are more sensitive toward negative evaluation, such as anger, contempt, and more inclined to overestimate the critic attitudes of others, which cause the contradiction and conflict with others (Gao, Gao, Han, & Wang, 2014).

In addition, there is a positive correlation between child shyness and dependent teacher-child relationship, i.e. the shy children are more dependent on their teachers. This phenomenon has been verified in many researches (Wu, *et al.*, 2014; Kimberley, *et al.*, 2010). It may be mainly caused by the fear of shy children when faced with unfamiliar surroundings in their early childhood. In the process of peer interaction, the shy children may have more anxiety, fear and other negative emotions (Chen, 2013). When their parents are not present, they will seek help and guidance from their

teachers, who act as an external environment safety base. Therefore, the shy children tend to act more dependent on their teachers (Thijs & Koomen, 2008). What's more, shy children are more likely to get peer rejection, and the only way for them to obtain social interaction is the dependence on their teachers, which is also a crucial factor causing this phenomenon.

Finally, shy children are more prone to have attention problems than non-shy children, and the reason of the phenomenon is that shy children tend to spend more time to monitor their own feelings and behaviors and care too much with every action of their own (Chen, Gao, & Han, 2013). This would be expected to result in the reduction of the attention resources allocated to the external environment, which is the main reason of their attention problems. In addition, shy children always become very anxious for fear of making a bad impression to others, and this bad mood is also a crucial factor resulting in their attention problems (Chen, 2013).

In early childhood, teachers provide help and guidance so establishing a good teacher-child relationship is essential to children's physical and mental development (Hamre & Pianta, 2006). The teacher-child relationship including three factors: closeness, conflict and dependence. The main characteristics of close relationship are open and warm communication between teachers and children, conflict relationship are tense and hostile, and in the dependent relationship, the children are over-dependent on their teachers. Although shy children apparently have difficulty establishing a close relationship with their teachers, if a relationship is established, it likely will help them to avoid behavior problems associated with shyness (Kimberley, *et al.*, 2010). The current study has verified this viewpoint. The close teacher-child relationship has a positive moderating effect between child shyness and externalizing problem. In the case of less close teacher-child relationship, the shyness has a positive prediction on children's aggressive behavior and attention problem, and in the case of closer teacher-child relationship, this link is obviously weakened. Therefore, if shy children can establish close relationship with their teachers, it will protect them from a series of externalizing problems. One of Coplan's researches found the similar results that warm and supportive parenting styles have a positive moderating effect in shy children's behavior problem, and the close teacher-child relationship can also create a warm and supportive living atmosphere for children (Coplan, *et al.*, 2008). In addition, results of this study are also consistent with Kimberley's research (Kimberley, *et al.*, 2010).

In addition, results also showed that the dependent teacher-child relationship also play a moderating role between child shyness and aggressive behavior. For children with higher dependent teacher-child relationship, shyness can lead to more aggressive behaviors. On the one hand, excessive reliance on teachers may further limit the shy children to explore the external environment, and then limit the development of their ability in social communication; on the other hand, shy children who depend on the teacher excessively will spend much more time with their teachers, which may bring other peers' jealousy and rejection, causing a series of externalizing problems (Wu, *et al.*, 2014).

In this research, we didn't find the moderating effect of conflict teacher-child relationship between child shyness and externalizing problem. However, we found the direct predict effect of it on child aggressive behavior, and this result is similar with Kimberley's research (Kimberley, *et al.*, 2010), in which Kimberley pointed out that the conflict teacher-child relationship does not have moderating effect, but has a stable negative impact on children's adjustment. The main reason for this phenomenon is that children who are prone to establish conflict teacher-child relationship usually have aggressive personality, and influenced by this personality, they are also more prone to have aggressive behaviors in peer interactions. In addition, the tense relationship with teacher may also lead to exclusion of their classmates, thus aggravate their aggressive behavior.

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