



RESEARCH ARTICLE

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The Relationship Between Cooperative Tendency and Social Anxieties among Migrant Children in Jinan, China: A Moderated Mediation of Social Adaption

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Abstract

In urban-rural integration construction in China, the migrant children who follow their parents to urban cities have become a particular group in the urban system. Due to the stimulation of new environments, these migrant children experience psychological and socially unfit in the urban environment. Therefore, this study explores the relationship between migrant children's cooperation tendencies and social anxieties. The study was organized quantitatively and distributed questionnaires to 344 migrant children. The results indicated that the cooperation tendency was significantly negatively related to children's social anxieties; Preference for solitude played a fully mediating role between migrant children's cooperation tendency and social anxieties; Social adaptation plays a moderating role in the influence of cooperation tendency on preference for solitude, and a higher level of social adaptation enhances the influence of cooperation tendency on preference for solitude. The results of this study have significant reference value for reducing social anxieties in migrant children's cooperation situation and establishing healthy social interaction.

Keywords: Migrant Children; Cooperation Tendency; Social Anxieties; Social Adaptation; Preference for Solitude

INTRODUCTION

The movement of people across borders has become a significant feature of our contemporary world, with millions of migrants leaving their homelands in search of better economic opportunities and social conditions (Castles, 2002). Particularly susceptible to a variety of psychological and social issues that may hinder their integration into their new communities are migrant children. Social anxiousness is one such difficulty that has been discovered to be shared among migrant children. The willingness of people to collaborate with others in order to achieve a common objective is referred to as a cooperative tendency, on the other hand. It is a crucial social behaviour that promotes integration and lessens social anxiety. However, little is known about the connection between migrant children's cooperativeness and Social Anxiety. Additionally, migrant children may have a noted propensity to curtail social interaction when faced with uncertainty, which can aggravate their anxiety. In order to create successful interventions to support the mental health and well-being of migrant children, it is essential to comprehend the connection between cooperative tendencies and social anxieties.

Migrant children frequently experience social anxiety as an adverse mental health condition due to various factors such as the household registration system limitations, conflict with urban culture, lifestyle and values, and a weaker sense of well-being and security (Chen et al., 2018).



Migrant children are a large and unique group in China. Gu (2022) quoted the report "The new citizenship project's China migrant children Development Report (2020)", stating that since 2020, there have been around 130 million migrant children living in China, accounting for more than 40% of all children (Gu, 2022). With rural identities, migrant Children follow both or one of their parents to live and study in cities for more than six months (Zhou, 2022). It has been shown that migrant children who live in cities have less frequent interactions—their social networks are divided, social support is weakened, and social integration is poor—they start rejecting social relationships (Yang & Zhao, 2011). The mental health status of migrant children needs urgent attention.

Social anxiety is a common adverse mental health condition found among migrant children. Due to the limitations of the household registration system, the contradiction between urban culture, lifestyle, values, and the weaker sense of well-being and security, migrant children are more prone to suffer social anxieties in social situations (Chen et al., 2018).

Therefore, aimed at improving social anxieties and mental health, this paper explores the pre-dependent variables affecting the social anxieties of a particular group of children—migrant children, to enrich the research framework and guide the teaching practice. As a result, this research paper examines the factors contributing to social anxiety in migrant children to improve their mental health and reduce social anxiety. This study aims to broaden the research framework and guide teaching practices by identifying the pre-dependent variables that impact social anxiety in this group.

LITERATURE REVIEW

Cooperation Tendency and Social Anxieties

Cooperation tendency is a person's innate propensity, which refers to the willingness to put their faith in others and work together to accomplish shared objectives (Chen et al., 2011). Social anxiety occurs when people fail to fulfill their desired social roles and behavior goals in the interpersonal engagement (Liu & Hu, 2015). There are not many domestic or international studies on the relationship between cooperation tendency and social anxieties, but since cooperation tendency is one of the critical aspects of cooperation, it represents a significant antecedent factor affecting social anxieties in migrant children. Domestic and international studies have recently concentrated on the effects of cooperation tendency on exam anxiety, learning anxiety, and schoolroom anxiety in learning and teaching contexts. These studies have confirmed the crippling effects of cooperation on anxiety: whether it is peer cooperation, teacher-student cooperation, or home-school cooperation, it can significantly reduce an individual's anxiety levels, and further, clinical psychological studies have shown that it is true (Oxford, 1997; Clark et al., 2013; Leary, 2013; Ou, 2021).



Furthermore, self-determination and the cognitive appraisal theory of emotion show how cooperative tendency influences social anxiety. Self-determination theory suggests that an individual's thorough assessment of the external environment will determine how the external environment affects their internal motivation (Deci et al., 1985). The cognitive appraisal theory of emotion accounts for the fact that when a person is exposed to a stressor, their mind automatically starts a cognitive process to evaluate the potential threat or challenge that stressor poses to them personally, leading to a particular emotional response (Lazarus & Folkman, 1984; Yan et al., 2014). As we all know, migrant children always engage in challenging social interaction environments, making them anxious. However, children with different cooperative tendencies will conduct different cognitive evaluations according to their personal and environmental conditions, resulting in different degrees of anxiety. Suppose a child has a higher tendency to cooperate. In that case, he has a more positive understanding of the environment and society, thus reducing social anxiety caused by coming to an unfamiliar environment (Lamba, 2014).

Preference for Solitude's Mediating Effect

Some academics have shown a link between personality qualities and a propensity for isolation, interpreting this inclination as a personality disposition (Zhou et al., 2021). Solitary preference is a category of people with low motivation to approach and low to high motivation to avoid, preferring solitary activities over others (Wang, 2016). According to this study, preference for solitude decreases with cooperation tendency. The propensity for cooperation tendency acts as an internal motivator. When a situation is self-consciously challenging, people vary their level of internal arousal and alter how they exhibit their personalities. According to personality reinforcement sensitivity, personality comprises three systems—the behavioral inhibition system, the behavioral convergence system, and the fight-flight-freeze system—each engages and reacts to stress differently (Kimbrel, 2008). People with a strong predisposition for collaboration will exhibit less fight-flight freezing response in unexpected situations, increasing their demand for social engagement, activating their behavioral convergence system, and decreasing their preference for solitude (Kimbrel, 2008; LI & FENG, 2013).

The routes of the two components, preference for solitude and social anxieties, in social contact can be explored. Preference for solitude significantly contributes to children's lack of social interaction, disengagement, and anxieties (Rubin et al., 2009; Goossens, 2013). A kind of social disengagement known as a preference for solitude has been linked strongly to suicide ideation, social isolation, and anxiety levels (Endo et al., 2017) People who prefer solitude tend to be introverted, avoid social situations, block social interaction pathways, be more prone to social anxieties, and have a cooperative tendency to think negatively and feel negative when young (Zhou, 2012; LIU et al., 2015). In light of this, when migrant children move into a new home, their cooperative inclinations impact their preference for solitude, impacting social anxieties.

Thus, our study suggests that the hypothesis:

1. in the process of migrant children's cooperation tendency impacting their social anxieties, preference for solitude desire plays a mediating function.

Social Adaptation Moderates the Relationship Between a Cooperation Tendency and a Preference for Solitude

Social adaptation is the socialization process in which people engage with their surroundings to create harmony between themselves and their social environments by fitting in and modifying them (Liu & Hu, 2015). The concept of the recent process contends that the organism and environment are always interacting, which is advanced by the bio-ecological model of the human development (Bronfenbrenner & Morris, 1998). Migrant children are in the stage of having a dual identity that is both rural and urban, and their 'recent process' is defined by ambiguity and integration. Instead of changing the environment, adaptation is more likely to solve the issues encountered during the mobility process and is associated with higher levels of psychological resilience, good mental health, and cooperation (Wang et al., 2016). A person with better social adaptation will perceive social interaction scenarios more favorably and change unhelpful coping mechanisms with a more optimistic outlook, which can help them to avoid social marginalization and social isolation.

Moreover, social adaptation lessens the effect of their preference for solitude on their tendency to cooperate. In contrast, a person with poorer social adaptation will find social interactions more frustrating (Ota et al., 2020). Thus, based on the initial research, hypothesis 2: Social adaptation moderates the relationship between cooperation tendency and preference for solitude.

Conceptual Framework

In the process of cooperation tendency affecting social anxieties in migrant children, this study examined the mechanisms of the role of preference for solitude and social adaptation. It proposed hypotheses 1 and 2 that preference for solitude plays a mediating role in the process between cooperation tendency and social anxieties and that social adaptation moderates the first half path of mediating effect (Figure 1).

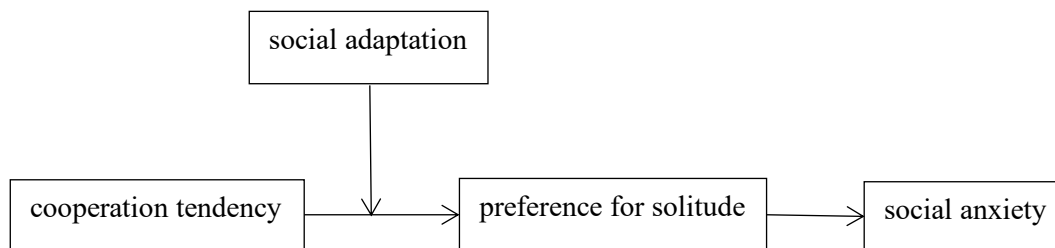


Figure 1. The hypothetical model.



RESEARCH METHODOLOGY

Participants and Procedure

An intermediate school in Jinan, China, where all the students were migrant children, was selected for the study by stratified whole-group sampling. The researchers sought approval from the participants' schools, before conducting questionnaires and experiments on each eligible participant. Furthermore, this research did not harm the children either physically or psychologically. Three hundred ninety-two questionnaires were distributed, and 344 valid questionnaires were returned, with a return rate of 87.8%. Among them were 189 male students, accounting for 54.8% of the total number, and 155 female students, accounting for 44.92 %, with an average age of 12.4 years. All questionnaires are used in Chinese and convenient sampling is adopted.

Variables Measurement

Cooperation Tendency

The cooperation subscale of the Cooperation and Competitiveness Personality Inventory was selected to measure children's cooperation tendencies. The 13-item scale was developed by Xie (2006) and is divided into three dimensions: inclusiveness, reciprocity, and willingness to fit in. The scale is scored on a five-point Likert self-assessment scale, ranging from 'not at all' to 'fully' on a scale of 1-5. In this study, the internal consistency coefficient was 0.80.

Social Anxieties

Social Anxieties Scale for Children (SASC) was selected and developed initially by La Greca et al. at the University of Virginia in 1988 and later introduced and revised by Ma Hong in 1993 and 1999. The revised questionnaire in 1999 was used in this study. The scale consists of 10 self-statement items and is scored on a 3-point scale from 0-2, with 'never' = 0, 'sometimes' = 1, and 'always' = 2. A higher score indicates a higher level of anxiety. The scale contains two factors: fear of negative evaluation and social avoidance and distress. Previous research has shown that this questionnaire has good reliability and validity and can be used as a valuable tool to study social anxieties in children. In the present study, the internal consistency coefficient of the scale was 0.85.

Preference for Solitude

The preference for Solitude Scale (PSS), developed by Buger in 1995 and revised by Chen et al. (2011), was selected. The 12-question scale uses a forced choice format to assess whether an individual prefers to be alone or to interact with others in various situations. Previous research has shown that this questionnaire has good reliability and validity. In the present study, the internal consistency coefficient of the scale was 0.80.



Social Adaptation

The Social Adaptation Scale for Children and Adolescents (SASCA), developed by Hu and Guo in 2007, was selected. Forty-eight questions were scored on a 5-point scale: 1 (not at all) to 5 (ultimately), and the higher the score, the higher the level of social adaptation. The scale contains eight social adaptations: interpersonal friendliness, activity participation, learning autonomy, life independence, environmental satisfaction, interpersonal coordination, social identity, social vitality, and one polygraph factor. In addition, the eight factors can be categorized into three second-order factors: adaptation to learning and school, adaptation to life and activities, and adaptation to social relationships and perceptions. In the present study, the internal consistency coefficient of the scale was 0.94.

Data Analysis

The data were entered into SPSS 25.0 and descriptive statistics were analyzed for each variable. Pearson correlation analysis was used to examine the correlation between preference for solitude, social anxieties, preference for solitude, and social adaptation. PROCESS V3.2 was used to analyze the mediating role of preference for solitude and the moderating role of social adaptation on the cooperation tendency and preference for solitude.

RESULTS

The Harman one-way test was used to test for common method bias statistically. The results of the unrotated factor analysis showed that a total of 20 factors had characteristic roots more significant than 1, that the first factor explained 26.58% (< 40%) of the variance, and that the effect of common method bias on the current study results was within manageable bounds.

Preliminary Analyses

The demographic data show that the subjects in this study had a balanced gender distribution, with 54.85% men and 44.9% females. They were mainly between 11.5-12.5 years old, and more evenly distributed samples were collected from the intermediate schools.

When asked, "How many times have you moved since you were a child?" nearly half of the subjects selected "1-2 times," but more than 5% said they had moved more than five times. The general level of parents' schooling was low; most subjects' parents' educational levels were below junior high school and high school to college, with only a small number having postgraduate degrees or higher.

The results of the variables correlation analysis showed (Table 1). Children's social anxieties were significantly positively correlated with a preference for solitude and negatively correlated with social adjustment, while a preference for solitude was significantly negatively correlated with social

adjustment. Cooperation tendency was significantly negatively correlated with children's social anxieties and preference for solitude and positively correlated with social adjustment. The variables were subjected to an ANOVA, and the results showed that there were significant differences in social anxieties levels by grade and gender, with girls significantly more socially anxious than boys ($F = 6.79$, $p < 0.01$) and fifth grade showing significantly higher levels of social anxieties than third grade. Grade-related differences in preference for solitude were significant, with fifth grade considerably more solitary than third grade ($F = 8.24$, $p < 0.001$).

Table 1. The mean (M), standard deviation (SD), and correlations of the variables (n = 344).

Variable	1	2	3	4
1 cooperation tendency	1	-		
2 social anxieties	-0.15**	1	-	
3 preference for solitude	-0.28**	0.46**	1	-
4 social adaptation	0.56**	-0.19**	-0.23**	1
M	36.16	6.31	14.66	167.75
SD	7.54	4.83	5.81	37.49

Note: ** $p < 0.01$; * $p < 0.05$.

Regression Analyses

Preference for Solitude Acts as a Mediator between Social Anxieties and Cooperation Tendency

All continuous variables were standardized, and Model4 was used to do the mediation effect analysis in the Hayey-created PROCESS plug-in while controlling for the effects of grade and gender. The bias-corrected non-parametric percentile Bootstrap method drew 5000 samples from the original data. It was discovered that the indirect effect's 95% confidence interval did not contain 0 and that the 95% confidence interval does contain 0 indicating that the full mediating effect of preference for solitude holds, with a mediating effect value of -0.12 (Table 2).

Table 2. The total effect, direct effect, and indirect effect of Cooperation tendency and social anxieties (n = 344).

Outcome Variable	BootLLCI95%	BootULCI95%	β
Total effect	-0.26	-0.06	-0.16
direct effect	-0.13	0.06	-0.04
indirect effect	-0.19	-0.07	-0.12

Note: BootLLCI, bootstrap lower level of confidence interval; BootULCI, bootstrap upper level of the confidence interval.

Solitary Choice Has a Moderating Effect on the Mediated Model

Mediated effects analysis was conducted using Moldel7 in the PROCESS plug-in prepared by All continuous variables were standardized, and a mediated effects analysis was performed using Moldel7 in Hayey’s PROCESS while controlling for gender and grade. The results showed that cooperative tendency ($\beta = -0.25, t = -4.05, p < 0.01$) and social adjustment ($\beta = -0.17, t = -2.69, p < 0.01$) negatively predicted preference for solitude, preference for solitude significantly positively predicted social anxieties ($\beta = 0.43, t = 8.66, p < 0.01$), and cooperative tendency interacted significantly with social adjustment negatively predicted preference for solitude ($\beta = -0.14, t = -3.16, p < 0.01$)(Table 3) . To further analyze the conditional indirect effect of preference for solitude, this study divided preference for solitude into three groups: high, mean, and low levels, with the mean plus or minus one standard deviation (Table 4). The 95% confidence interval for the low level contains zero. In comparison, the 95% confidence interval for the mean and high levels does not contain zero, indicating that social adaptation moderates the effect of cooperative tendency on preference for solitude.

Table 3. The moderated mediating effect analysis of Cooperation tendency on social anxieties (n = 344).

	Y: Social anxieties				M: Preference for solitude			
	β	SE	T	p	β	SE	t	P
Constant	-1.03	0.28	-3.64	0.000**	-0.75	0.31	-2.44	0.02*
Cooperation tendency	-0.037	0.05	-0.77	0.44	-0.25	0.06	-4.05	0.000**
social adaptation					-0.17	0.06	-2.69	0.01**
Cooperation tendency×social adaptation					-0.14	0.04	-3.16	0.002**

Grade	0.17	0.05	2.84	0.01**	0.21	0.06	3.30	0.001**
Gender	0.26	0.10	2.75	0.01**	-0.004	0.10	-0.04	0.97
preference for solitude	0.43	0.05	8.66	0.000**				
R ²			0.25				0.15	
F			28.29				11.80	

Note: * p < 0.05.; ** p < 0.01

Table 4. The indirect effect of Perfectionism and social anxieties.

mediating variable	Trait Mindfulness	Effect	BootSE	BootLLCI95%	BootULCI95%	
preference for solitude	high-level	-1.00	-0.05	0.03	-0.12	0.01
	M	0.07	-0.11	0.03	-0.18	-0.05
	low-level	1.05	-0.17	0.05	-0.26	-0.08

Note: BootSE, standard bootstrap error; BootLLCI, bootstrap lower level of confidence interval; BootULCI, bootstrap upper level of the confidence interval.

Simple slope analysis was used to split students into groups with high and poor social adaptation (one standard deviation above and below the mean, respectively), and a simple slope plot was created to more clearly illustrate the moderating effect of social adaptation (Figure 2). The findings demonstrated that while individuals with high social adaptation ($\beta = -0.30, t = -4.70, P < 0.001$) caused a significant decrease in individual preference for solitude, individuals with low social adaptation ($\beta = -0.08, t = 2.012, P = 0.13$) did not significantly reduce their preference for solitude.

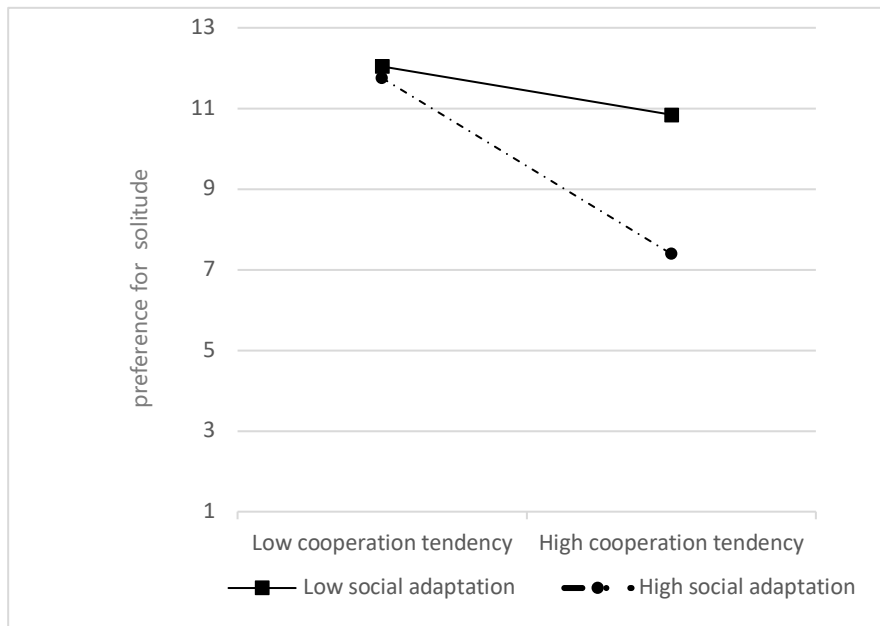


Figure 2 Simple slopes of the interaction effect: Cooperation tendency social adaptation (n = 344).

DISCUSSIONS

Analysis of the Relationship between Children's Cooperation Tendency, Preference for Solitude and Social Anxieties

The results of the current study support previous findings that cooperation tendency is positive social anxiety and support the negative impact of preference for solitude on social adaptation. The cooperation tendency was significantly negatively related to children's social anxieties and preference for solitude, while the preference for solitude was significantly positively related to social anxieties. Because migration is a life event, social connection is necessary. Migrant children must socially integrate and develop a social identity as a result of their new environment, but social engagement also encourages peer bonding and relationship creation (Li & Guo, 2007). Children who are less likely to cooperate and prefer solitude demonstrate aloofness and solitude in the classroom, are frequently misunderstood by peers and teachers, and are more likely to experience adverse treatment during socialization. Particularly during the early adolescent school adjustment, they have higher levels of anxiety and depression (Zhou et al., 2021).

The mediating role of preference for solitude between cooperation tendency and social anxieties

According to the results of the mediating effect, the preference for solitude entirely mediates the relationship between cooperation tendency and social anxieties, suggesting that cooperation tendency indirectly influences social anxieties through solitary choice rather than directly affecting social anxieties. On the one hand, people's preference for solitude is diminished by cooperation tendency.



According to cognitive appraisal theory, people with cooperation tend and assess their new living situation, decide to 'adapt', and then suitably give up their choice for preference for solitude as a way to lessen their anxiety from social engagement (Ryanrm & Deci, 2000). However, on the other hand , a preference for solitude might prevent people from engaging in social interaction, diminishing the advantages of the cooperation tendency itself and escalating social anxieties. Object relations theory suggests that people with a strong preference for solitude are less able to explore new places and less likely to form strong emotional bonds. People who lack social support are more likely to prefer living alone to working together with others, feel helpless more often, and produce negative emotions like anxiety and stress (Hu, 2022). According to the social identity hypothesis, a preference for solitude is strongly linked to social avoidance and retreat. The anxiety state will be exacerbated in people with a preference for solitude because they will be less willing to work cooperatively with others, integrate into new groups less, and reinforce their own and others' social categorization. These can help them show more in-group preference and out-group bias for themselves and others and be more likely to provoke aggression and discrimination from others (Nesdale, 1999; McAuliffe & Dunham, 2016).

The moderating effect of social adaptation on the cooperation tendency and preference for solitude

According to Wang et al. (2019), interpersonal interactions are a dynamic system of internal working models' and migrant children's social adaptation has a beneficial impact by raising their chances of integrating new attachment peers, forming friendships, and feeling secure. The results of the moderating effect also imply that migrant children's social adaptation modifies the impact of cooperation tendency on preference for solitude. Those migrant children with higher social adaptation exhibit fewer preferences for solitude.

Actualy, the process of individual social adaptation entails both the cheerful and amiable integration of new' social people' into the environment as well as the active learning of attitudes and abilities to enter a new setting. The resource conservation theory contends that people with solid social adaptation have stronger self-efficacy and regulation, are better able to avoid resource depletion and maintain appropriate social interactions in the face of threatening and challenging incoming social environments, and have significant and positive correlations between their social adaptation and independence function, cognitive function and closeness (Hobfoll, 1989; Yuan et al., 2022). According to the latter point of view, solidarity and cordial, laid-back, and humble social interactions are more likely to demonstrate how easily people can adapt to social environments, and the more interpersonal needs people have as they go through the socialization process, the less solitary behaviours they will exhibit (Yang, 2009).



CONCLUSION AND POLICY RECOMMENDATIONS

This study confirmed cooperation tendency's positive influence and preference for solitude's detrimental effect on migrant children's psychosocial adaptation, concluding that preference for solitude plays a fully mediating role in the process of cooperation tendency influencing social anxieties. Future research may be able to explore a more thorough and realistic pathway of how cooperation influences anxiety from a cooperative scenario since this study only used one aspect of cooperation, cooperation tendency, as the independent variable and only used the questionnaire method to measure the variable. Additionally, this study included social adaptation as a moderating variable rather than focusing on the social adaptation outcomes of migrant children. This suggests that migrant children's urban social adaptation is an organic, interactive, and constantly changing process in the internal and external environment (Yeung et al., 2022), so it should be more pertinent to examine migrant children's psychological behavior from a holistic and systematic perspective.

Outside the school system, family and community education also play an essential role in improving the social anxiety of migrant children. However, there is no effective policy to guide schools, families, and communities on how to improve the social anxiety of migrant children, what methods to adopt to reduce the preference for the solitude of migrant children, and how to coordinate and cooperate among them to deal with the psychological problems of migrant children. Therefore, forming a "family-school-community" linkage mechanism with the school as the core will significantly help to improve the social anxiety of migrant children. A group should be formed between the school, the community, and the parents of the migrant children, focusing on the professional role of the school psychologist, the direct parenting and education role, and the social service role of the community workers. The three parties should actively communicate with each other. Professional teachers and community workers should make scientific and reasonable suggestions and design various activities to improve the social anxiety of migrant children. Parents should cooperate and give feedback in time to help their children or participate in the activities together with them, to give full play to the active role of the linkage group. The relevant government and education authorities should also support and encourage the linkage groups and provide them with human and material resources, especially financial support, when necessary, to ensure the smooth implementation of their work.



Data (and Software) Availability

All data underlying the results are available as part of the article and no additional sources of data are required.

Authors Contributions

Yihe Zhang is responsible for the conception, writing and revision of the paper.

Yihe Zhang, Meiru Wang, Jiayi Miao and Yuxuan Nie are responsible for data collection and statistical analysis.

Dandan Cheng is responsible for project construction and comprehensive guidance of the paper.

Competing Interests

Upon the publication of this study, no conflict of interest was declared by the researchers.

Ethical Statement

The researchers sought approval from the participants' schools, before conducting questionnaires and experiments on each eligible participant. Written informed consent was obtained from all the participants prior to enrollment in this study.

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