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Executive Function Status and Countermeasures of Urban Left-behind Children in Primary School

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Abstract: Executive function (Executive Function) is also known as cognitive control (cognitive control) or executive control (Executive control), in the late 19th century, Harlow put forward the theory that "prefrontal damage can lead to loss of planning function", executive function is considered equivalent in cognitive abilities mediated by the prefrontal cortex (Harlow, 1993). Numerous studies have found that executive function plays an important role in children's lifelong development: such as physical and mental health, academic achievement, family happiness, interpersonal relationships, etc. Impaired executive functioning is closely associated with learning disabilities, substance abuse and addiction, attention deficit hyperactivity disorder, conduct disorder, depression, obsessive-compulsive behavior, and schizophrenia[1-2].

1. Introduction

The early family environment will affect the development of children's executive function, and the left-behind children's executive function development level is relatively backward compared with ordinary children due to premature separation from their parents.

This is related to the complicated family environment created by the guardians (non-parents) of left-behind children.Previous studies have found that family environmental factors such as the number of family members and family economic status will have an impact on children’s executive functions. Children’s long-term or repeated separation from their primary guardians during critical periods will cause dissociative trauma and lead to imbalances in many psychological mechanisms.

This may be an important reason for the poor working memory development of left-behind children who are separated earlier; and the left-behind children who are separated earlier have poorer attachment security, which often leads to their exaggerated perception of negative signals, hyperawareness of the surrounding environment, This reduces the attentional resources devoted to the current task, thereby affecting the performance of inhibitory control.

2. The concept of urban left-behind children

According to the existing research literature, the most beginners have put forward different definitions for urban left-behind children. Lin Lin believes that urban left-behind children refer to

children aged 0-18 whose household registration is located in the city, where both parents or unilaterally go out to work and cannot be with them for a long time (usually half a year).Wang Luo and Li Xianfeng believe that urban left-behind children refer to minors under the age of 18 in urban families who cannot live with both parents or unilaterally because both parents or unilaterally go out to work and stay at home for more than six months.

Redefining urban left-behind children: In view of the current situation of different concepts of left-behind children in cities, from the perspective of left-behind performance, it can be divided into physical left-behind and psychological left-behind. The household registration of urban left-behind children refers to children with non-agricultural household registration and living in cities or towns. However, there is a special situation that although parents and children live together every day, because parents are busy with work and entertainment for a long time, or even entertain themselves, they lack caring for their children, or the above psychological left-behind is reflected in the fact that there is almost no verbal communication between parents and children Or physical contact, lack of communication, resulting in children unable to receive care and care from their parents, feeling lonely, lonely, and insecure. This kind of spiritual left-behind for more than six months can also be called urban left-behind children. Physical left-behind is reflected in the separation of parents and children in time and space, and children who do not live together for up to 6 months.

3. The status of executive function of urban left-behind children

Urban left-behind children have fewer family economic problems, but children's emotional needs are higher than their material needs in the process of growth. The company of parents is the most basic emotional comfort and the most basic education for children in childhood. Most of these children have some problems, such as low self-esteem, lack of self-confidence, and self-centered tendencies; emotionally Fluctuations are easy to cause paranoia, panic, depression, sensitive interpersonal relationships, and even depression; left-behind children will attribute the results to external causes in the face of pressure and setbacks, and use evasion or fantasy to deal with them; they will have resentment and resistance when dealing with personal relationships. ; In terms of interpersonal relationships, due to the introverted and withdrawn personality, the human-machine relationship is generally sensitive, and it is easy to conflict with partners.

The executive function of urban left-behind children is a very important part of their growth and development. Neglecting this will cause some common problems for children.

Its importance has been overlooked due to the low level of attention from families, schools, society and the state. In more than 90% of the literature, researchers believe that children's attention and learning ability are closely related to the executive functions of children's ontology. groups such as children.

The executive function of urban left-behind children is often not scientifically valued, and even schools and parents do not have a correct understanding of these issues, thinking that children are still young, naughty, active, and poor in grades. .

However, according to research, the effect of intervention on executive function in early childhood is more obvious[3].

Interventions on the executive function of left-behind children at an early stage can promote the executive function of these children, Despins (2012).In Zhang Li's research, she pointed out: "Children's executive function has a significant positive predictive effect on learning quality and early language and mathematics ability. Annettel Holth Skogan noted: "Executive functioning in young children with ADHD, EF dysfunction may contribute to ADHD. Evidence suggests that, at a population level, there is a link between ADHD symptoms and EdF in children, primarily in two fundamental, developing EF processes, working memory and inhibition. The findings on inhibition

difficulties are relatively reliable[4]. These researchers show that working memory can It is strongly suggested that three important subsections of executive function are highly correlated with intelligence.

4. Research objects

From the first grade of primary school in Liaocheng City, families of children whose parents are working or are accompanied by their grandparents for a long time and are psychologically left-behind were recruited to participate in the study.

Participating children can get a gift. A total of 40 preschool left-behind children and 40 non-urban left-behind children were recruited; the participating children had no family medical history; the final number of valid subjects was 72. These children were divided into two groups, each Group of 36 people. The age range of urban left-behind children was 6-7 years old (4.90±0.98), including 42 boys and 30 girls.The children participating in the study obtained the guardian's informed consent through telephone or home visit.

4.1 Executive Function Task Group

This study measured the executive function of urban left-behind children by using the executive function task group. All tasks were performed on the iPad, and the subjects needed to touch the screen to complete all tasks.

Inhibitory-controlled measuring space arrow conflict task (SCA): firstly present the fixation point in the center of the screen for 500ms, then randomly present left or right arrows on the left or right side of the visual field, and ask the subjects to respond to the keystrokes to the direction of the arrow, if If the arrow points to the left, please press the left button (circle green button), if the arrow points to the right, please press the right button (circle green button, a total of 8 practice trials (see Figure 1 for an example), must respond within 3 seconds, a total of 36 A formal trial; record the correct rate.

Animal barking stroop task: In this task, the pictures of cats and dogs are presented at the same height in the left and right visual fields of the screen. The positions of each presentation are random. Children need to click on the picture of the cat when they hear the barking of the dog. When the cat meows, click the picture of the dog, the child must respond within 3 seconds, 2 practice trials, 17 formal trials, and the correct rate is recorded.

Animal Go/No-Go task (GNG): The experimental material includes 7 kinds of small animals, but only one animal is shown in the center of the screen at a time, and children are required to not click the button at the bottom of the screen when they see the picture of a pig; When you see the other 6 animal pictures, you need to make a button response within 3 seconds. Includes 6 practice trials and 40 formal trials; correct rate is recorded.

4.2 Measurement of working memory

Visual-spatial working memory (VWM): This task requires the child to memorize the field paths and the sequence the bunny walks through (animation), and then asks the child to reproduce the sequence and path of the animal's walk (touch-screen tap operation).

After the demonstration and guidance, complete 2 sets of practice trials. When the children master the rules of the game, they can enter the formal trial. On the contrary, continue to practice until they master the rules of the game.

A total of 12 groups of formal trials were conducted, and the correct rate was recorded.

Working memory span (WMS): presents a picture of a house in the center of the screen, asks

children to remember the color of each house's windows and two types of information about animals, presents an equal number of houses, windows, and animals, and then presents an empty house (the location is the same as the number of animals). The same as just presented), ask the children to recall and name the window colors and animals corresponding to each house, and gradually increase the difficulty.

After the demonstration and guidance, complete 4 sets of practice trials. When the children master the rules of the game, they can enter the formal trial. On the contrary, continue to practice until they master the rules of the game. There were 9 groups of formal trials, and the correct rate was recorded.

4.3 Measures of Cognitive Flexibility

Flexible item selection task (FIST): ask children to classify pictures according to the dimensions of color, category and size, pull two pictures of the same dimension into a box, practice 3 trials, and enter only after children master the rules of the game Formal trials, otherwise, continue to practice until you master the rules of the game oFIST (1): Present two pictures that are the same in a certain dimension at the same time, say the name of the dimension, and then present a new picture, ask the child to choose the first two pictures with the newest Pictures with the same picture dimensions were selected into the same box, with a total of 20 trials; the correct rate was recorded.

FIST (2) presents three pictures at the same time, and asks children to select two pictures that are the same in one dimension, pull them into a box, and then ask children to choose two pictures that are the same in another dimension, and pull them into another. Box, a total of 5 trials; record the correct rate.

5. Data Analysis Tools, Methods and Research Procedures

The data of this study were used for descriptive statistics and analysis of variance with spss23.0, and plotted with 0rigin[5].Home or telephone interviews were conducted with guardians of left-behind children to obtain informed consent and basic information before the test. Before the formal test, the head teacher should accompany the children into the test classroom to interact with the testers, so that the children are familiar with the test environment and reduce anxiety. Additional variables such as the screen brightness of the tablet, the relative distance between the subjects and the subject, and the content of the instructions were controlled. The full test takes longer and children can take breaks.

The results are as follows:

Table 1 Descriptive statistics of the correct rate of children aged 6-7 in each task

		Non urban left behind children	Urban left behind children	F
		M ±SD	M ±SD	
	SCA	0.81 ± 0.15	0.70 ±0.13	6.03
inhibition control	SSS	0.84 ±0.12	0.82 ±0.12	12.6
	GNG	0.72 ±0.80	0.69 ±0.04	16
working memory	VWM	0.81 ± 0.16	0.68 ±0.24	26.1
	WMS	0.52 ±0.11	0.52 ± 0.20	6.0
Cognitive flexibility	FIST(l)	0.72 ± 0.14	0.71 ±0.12	7.1
	FIST (2)	0.46 ±0.28	0.39 ± 0.22	1.27

The results of one-way analysis of variance (Brown-Forsyth test) showed (see Table 1) that the

task performance of non-urban left-behind children in the 6-7 year old group was significantly better than that of urban left-behind children (pvO.01); in the task SPSS, is also like this.

6. Countermeasures for the status quo of executive function of left-behind children in cities - home-school collaboration

The problem of urban left-behind children is not the responsibility of a child or a family, but is a special problem that schools, society, and government departments pay attention to and improve together. As far as urban left-behind at primary school age is concerned, schools and families are important interventions and nurture elements.

6.1 Attach importance to urban left-behind children and establish school-level urban left-behind children files

Urban left-behind children are a group that is easily overlooked. In the city, under the dazzling shell of material life, few people pay attention to the inner needs of this group of children. Therefore, when they have various bad behaviors in school, they are just like children in ordinary families, the problem is generally dealt with, and they have not received more and deeper attention and compassion.

6.2 Clarify the school's leading responsibilities in the home-school collaborative education of urban left-behind children

In the construction of the home-school collaborative education system, the participation and cooperation of family education is indeed very important and indispensable, but the dominant position of schools in collaborative education is undeniable. Especially when the family education of left-behind children in urban areas is relatively weak or even absent, the leading responsibility of schools becomes more prominent.

6.3 Establish a long-term and sound home-school coordination mechanism for urban left-behind children

A good home-school collaborative education mechanism has two very important criteria: one is long-term effect, and the other is soundness. The so-called "long-term effect" of the home-school synergy mechanism means that the process of home-school synergy education is consistent and constant, rather than short-term and intermittent. When the child behaves badly in school, the teacher will communicate with the parents, explain the specific situation of the problem, and hope to get the cooperative education of the parents.

6.4 Pay attention to the cultivation of teachers' personal ability in home-school collaborative education

First of all, strengthen the cultivation of teachers' cooperative education concept. As front-line workers in education, teachers can easily discover the educational problems and educational problems caused by relying only on one-sided school education in their own work, and thus spontaneously generate home-school synergy. values in education. Secondly, in the training content of teachers' home-school coordination ability, the shaping of teachers' communication ability in home-school coordination is also essential. Finally, for the correction of children's bad behavior, the training of teachers' personal behavior quality can also be specially added. In the home-school

coordination of urban left-behind children's bad behavior correction, teachers are the main force in the implementation of coordination, and the level of teachers' personal behavior quality also affects the educational effect of home-school coordination in all aspects.

6.5 Do a good job in parent education and help parents become qualified home-school coordinators

In the process of cooperating at home and school to correct the bad behavior of urban left-behind children, schools and teachers must also attach importance to parent education and help the parents of urban left-behind children become qualified home-schools. Parents should pay attention to the cultivation of early childhood executive function. Research on neuroplasticity has also revealed the feasibility of early intervention in the development of executive function in preschool left-behind children. Parents of left-behind children should avoid premature separation from their children, ensure that left-behind children establish a secure attachment relationship, and provide a sense of security for children to actively explore and better adapt to new environments[6].

Use a variety of methods to intervene and promote children's executive functions. Such as music intervention and exercise intervention. According to research, music and sports are the best ways to promote children's executive function. As parents, it is necessary for children to actively participate in such programs and activities.

7. Conclusions

This study explores the executive function of urban left-behind children, and verifies the influence of family environmental factors on the left-behind children's executive function, which can provide theoretical guidance for the parents of left-behind children in scientific parenting, and has certain theoretical and practical value. Moreover, corresponding countermeasures are put forward for the problem of left-behind children in urban planning, but there are still some shortcomings and limitations in this study. Due to conditions and time constraints, the researchers did not collect data on rural or left-behind children to compare with other urban left-behind children of primary school age. The family environment factors selected in this study are relatively limited, and the influence of family environment factors on the executive function of urban left-behind children cannot be comprehensively investigated, so the comprehensiveness of the results of this study has certain limitations.

References

[1] Cao Zhicheng, Conceptual Research on Left-behind Children in Urban Areas, 2018
[2] Wang Cuiping, Effects of Executive Function Training on Early Childhood Cognitive Development and Academic Performance, 2019
[3] Yang Hua, Comparative Study of Urban Left-behind Children, 2018
[4] Meihua Li, Research on executive development of children in different grades, 2006
[5] Wang Ying, Zhu Haidong, Research on the development trend and influencing factors of executive function in preschool children, 2020
[6] Yuan Yuan, Study on home-school coordination in the correction of bad behavior of left-behind children, 2018