

# *A Review of Behavioral Interventions for Autism Spectrum Disorder*

Xiaohan Yang<sup>1,a,\*</sup>

<sup>1</sup>The Faculty of Education, East China Normal University, North Zhongshan Road, Shanghai, China

a. yangxiaohan@berkeley.edu

\*corresponding author

**Abstract:** In recent years, the number of children diagnosed with autism spectrum disorder (ASD) has increased. This not only affects the level and quality of life of children and families, but also brings trouble to the whole society. Therefore, it is necessary to review history of the research of autism, sort out the literature on rehabilitation interventions for autistic children in China and abroad in the past decade, put forward the problems existing in current autism research, and summarize representative intervention methods. The results show that: there are three major problems in the current research on autistic children with autism spectrum disorders: the research methods need to be further enriched, the number of research objects needs to be increased, and the practice and application of research technology need to be strengthened. The construction of family needs and support system, the use of music therapy, and the intervention of virtual reality technology can effectively help autistic children with autism. Finally, by carefully reflecting on the existing intervention methods and effects of autistic children with autism spectrum disorders, the present study provides feasible suggestions to promote the rehabilitation of autistic children in China to a new level.

**Keywords:** Intervention methods, Autism spectrum disorder, Rehabilitation Methods

## **1. Introduction**

Autism spectrum disorder, also known as autism, is a kind of pervasive developmental disorder, classified as a kind of childhood developmental disorder caused by nervous system disorders, characterized by serious and extensive social interaction and communication skills impairment and rigid behavior, interest and activity. At present, with the increasing level of social development in China, people's material life has been better satisfied, and national policies and social attention to special groups are also increasing. Various intervention methods for autism have emerged, causing widespread concern in the government, society and family [1]. Therefore, this study will summarize and sort out the relevant research on the rehabilitation of autistic children at China and abroad in the past ten years, mainly analyze the effective practical paths that are helpful to the rehabilitation of autistic children, mainly including two aspects: family and educational intervention and musical therapy. Finally, a summary is made, and conclusions and prospects are proposed according to the current situation.

## **2. Concept Interpretation**

### **2.1. Autism Spectrum Disorder**

"Autism spectrum disorder", also known as "autism". It is a kind of pervasive developmental disorder that occurs in infancy (before 3 years old), with varying degrees of social communication disorders, communication disorders, limited interests and rigid and repetitive behaviors as the main clinical features. Other non-specific problems can also be seen, such as phobia, sleep and eating disorders, anger and self-directed attacks.

Autism is a kind of pervasive developmental disorder, classified as a childhood developmental disorder caused by neurological disorders, characterized by severe and extensive impairment of social interaction and communication skills, and stereotyped behaviors, interests and activities [2]. However, as the cause of autism is still unknown, the onset type, onset time and onset characteristics are not the same, so the concept of autism spectrum disorders is derived.

### **2.2. Behavioral Intervention**

Intervention and artificial interruption of the natural process of a behavior occurrence and development, in order to eliminate or change the behavior of the external intervention methods [3].

## **3. Overview of Family and Educational Intervention**

### **3.1. The Necessity of Family Needs and the Construction of Support System**

At present, in the long treatment, the vast majority of children with autism need their original family's long-term care, so in the case of extremely limited resources, it is necessary to build a complete ecosystem [4]. Ecologist Brenner believes that individual development is inseparable from a small to large ecosystem, in which each system has a certain impact on individual development. To build a family support system for autistic patients with both overall planning and concrete implementation needs all-round and multi-level support from schools, governments, society and other parties. If these supports can play a role to the greatest extent, it will create a harmonious and comfortable living environment for autistic patients to a certain extent and will also be conducive to the rehabilitation of autistic children.

### **3.2. Establishment Methods of Establishing Family Support System**

The following measures can promote the establishment of family support system for autistic patients: First, family education and family counseling should be combined to build internal family support. Family will affect the future of autistic patients and bear the hope of autistic children. On the one hand, family education should not only fully grasp the relevant situation of autism, but also have an in-depth understanding of the history and etiology of autistic patients. On the other hand, relevant legal knowledge of family education should be popularized, and family members should treat autistic children in harmony, especially adjust their attitudes, communicate equally and face setbacks bravely [5]. Only in this way can family education play a role in a good family atmosphere, and make the family truly become a place full of love and warmth. In terms of family counseling, social service resources should pay attention to the families of autistic patients. Family members should actively accept training to take care of autistic children, adjust their attitudes, and deal with complex problems in a timely and effective manner; professionals should be encouraged to participate in family counseling for autistic patients, and establish effective communication mechanisms with autistic families. Secondly, talk with family and friends and listen to their support. Families and members of autistic patients are under tremendous economic and spiritual pressure. The selfless support from

relatives and friends in economy, psychology, emotion and physical strength is undoubtedly the most powerful assistance [6]. Thirdly, the establishment of family-social support needs to be combined with preferential and inclusive policies. The treatment of autistic children cannot achieve good results only by relying on long-term care from family members. Therefore, the government should play a leading role, actively improve relevant laws and regulations, formulate preferential policies and comprehensive strategies for autistic patients, and improve the economic subsidies for families with autism; issue certain financial subsidies to encourage the prosperous development of autism-related professions and institutions; establish a special big data platform for autistic patients, and use cloud computing to construct a sound family-social support system.

### **3.3. Research Objects, Processes and Limitations**

The research objects of family education intervention methods are mostly individual families, and the data collection methods are questionnaire surveys or offline interviews. The research method mainly adopts qualitative research method and quantitative research method.

For the selected questionnaire survey subjects, there may be results errors due to the fact that the questionnaire sample size is not large enough or the survey results are not accurate enough.

In the interview subjects, because of the lack of resources and channels of researchers, a certain research subject is mainly distributed in a certain area. If the interview subjects are scattered to other cities in the country, the research results will be more fruitful.

At the same time, the selected subjects have chosen early intervention, and there is no case that they have never chosen early intervention. In fact, the parents who have not chosen early intervention also have high research significance, and they should also be included in future research. In the study of the influencing factors of the choice of early intervention by parents, because of the limitation of time and energy, the results obtained based on theories are presented, and the influencing factor model is not fitted and constructed from a larger sample size.

## **4. Overview of Music Therapy**

### **4.1. Concept of Music Therapy**

Autism is also known as autism, and the incidence of autism has been increasing in recent years. The rehabilitation and treatment of children with autism by music therapy has also attracted wide attention from the people. With the continuous progress and development of the times, a new type of music therapy discipline appears in front of people, and at this stage music therapy has gradually developed into a relatively perfect and mature fringe discipline.

The subject of music therapy involves a very wide range of knowledge, such as music professional knowledge and psychology, etc., and the overall ideological system of music therapy is also very complex. In addition, the educational knowledge received by music therapists in different cities and different nations is also different, and the art system and national beliefs between different cities and nations are different [7]. Under this development background, China has not formulated the most clear and clear meaning of music therapy at this stage. Fundamentally speaking, most of the children with autism are treated by using music teaching. Through the development of different music activities and music forms, the children with autism are stimulated and guided to stimulate the development of language communication ability of children with autism, so as to achieve the effect of influencing the emotions and social ability of children with autism.

## 4.2. Music Therapy Process

1. Inducing children to vocalize Therapists patiently guide children to the instrument, children's voice after the cartoon on the screen of the instrument will automatically follow the voice and make movements, training until the children on the instrument to make sounds.

2. Voice training

After inducing children to speak, guide children to extend the speaking time, training children's speaking time, help to extend the time to get along with children

3. Perception coordination training

Adjust the animation action range through the audio frequency of the voice, at the same time guide children to imitate the action on the screen, and conduct imitation training.

4. Memory training

Record the voice of children's training in front of the screen, and conduct silent training after being familiar with the mode of the instrument, let children say the meaning of the action according to the different actions on the screen, and train children's understanding ability and memory.

5. Pinyin oral training

After demonstrating the pronunciation of different pinyin for children, let children conduct imitation training, from listening, calling, reading training. Train 5 times a week, 40 minutes each time.

## 4.3. Analysis of the Impact of Music Therapy on Children

Music therapy can promote the language rehabilitation of children with autism, improve their language ability, social ability, improve their neurodevelopment and behavior ability, and the treatment effect is better.

### 4.3.1. The Impact of Music Therapy on the Language Ability of Children with Autism

Studies have shown that poor language development ability will directly lead to the limitation of children's adaptability, social behavior, fine movement and other related abilities. Therefore, it is very important to improve the language ability of children with autism. Music therapy training provides a rich language environment and communication platform for children with autism, improves children's feelings and observation, improves children's mechanical reflex memory state and rigid language and behavior of language, and stimulates their language development. The use of music therapy allows children to sing and do physical actions following the music on the basis of listening to and feeling music. In addition, the regulation effect of music on the excitation balance of brain nerve cells can promote the stability of cerebral cortex excitation area, which has a promoting effect on improving the language ability of children with autism.

### 4.3.2. The Impact of Music Therapy on the Social Ability of Children with Autism

Children with autism often play alone, refuse to communicate with others, and have significant social ability disorders [8]. Therefore, it is very important to improve their social ability. Music therapy can strengthen their acceptance of sensitive sounds; Music can increase the diversity of sounds, change the imbalance of children's auditory system, promote children to gradually perceive and accept sounds from rejection, improve children's adaptability to the surrounding environment sounds, reduce their sensitivity, and thus improve children's social ability.

#### **4.3.3. The Effect of Music Therapy on the Neurodevelopment of Children with Autism**

The essence of music therapy is to mobilize different senses in children's organs and stimulate responses, activate the nerve stimulation of the brain region to the motor cortex, and facilitate children to establish neurobehavior [9]. Music therapy can improve children's dysregulation of sound processing, improve children's perceptual ability and language expression ability, thus activating the cerebral cortex to stimulate neurodevelopment.

#### **4.3.4. The Effect of Music Therapy on the Behavioral Ability of Children with Autism**

The balanced development of vision, hearing, touch, and proprioception is the basis for the central nervous system to obtain information and make correct responses. Music therapy can improve the focus of children with autism, enhance their attention, form diversified normal behavioral ability signals to adapt to scenes, and reduce abnormal behavior. Music therapy can improve children's learning and interaction ability through various training, enhance their cognitive ability to things, and promote their behavioral ability.

### **5. Conclusion**

In recent years, the number of diagnoses of Autism Spectrum Disorder (ASD) in children has gradually increased, bringing significant impacts on individuals [10], families and the entire society. Therefore, this study reviewed the research history of autism, sorted out the literature on rehabilitation interventions for children with autism at home and abroad, analyzed the existing problems and summarized representative intervention methods, and provided practical suggestions for promoting the rehabilitation of children with autism in China.

The results showed that there were three major problems in the current research on autism: the research methods need to be further enriched, the number of samples of research subjects needs to be increased, and the practice and application of research techniques need to be strengthened [11]. However, the potential of family needs and support system construction, music therapy use, and virtual reality technology intervention have been shown to be beneficial to the rehabilitation of children with autism.

In terms of family and education interventions, it is considered necessary to build a complete ecosystem, including family, school, government, and society, and to provide all-round support. The establishment of family needs and support system requires the combination of family education and counseling, and the active participation of family members and the support of professionals to build a harmonious living environment. However, the current research has problems such as insufficient sample size and insufficient methods, which need to be improved in future research. As an innovative intervention, music therapy has a positive impact on the rehabilitation and treatment of children with autism. Through the explanation of the concept and process of music therapy, this paper revealed that music therapy could promote the language rehabilitation of children with autism, improve social ability, improve neurodevelopment and behavioral ability. Specifically, music therapy improves language development by stimulating children's perception and observation. At the same time, it improves social ability by strengthening children's acceptance of sensitive sounds. In addition, the improvement effect of music therapy on neurodevelopment and behavioral ability has also been confirmed in studies. In summary, methods such as family and educational intervention and music therapy provide effective ways for the rehabilitation of children with autism. However, research still faces a series of problems, including inadequate methods and inadequate samples. Future research should be devoted to solving these problems to better support the rehabilitation of children with autism. By carefully reflecting on the existing methods and effects, practitioners are expected to push the rehabilitation of children with autism in China to a new stage.

## References

- [1] Liu Xin & Xiang Youyu. (2021). *Progress on prosocial behavior of individuals with autism spectrum disorder in recent 20 years.*
- [2] Ji Yuqin, Ye Qiang & Tian Hao. (2023). *A systematic review of the effects of exercise intervention on basic motor skills in children with autism spectrum disorder. Abstract Collection of Papers of the 13th National Congress of Sports Science (Physique and Health Branch) (pp.492-494).*
- [3] Ma.Ying & Long Biyan.Modern Special Education (02), 61-69. doi:CNKI:SUN:XDTS.0.2021-02-011. (2020). *Review of foreign studies on family sex education in people with autism spectrum disorders.*
- [4] Jiang Ziyun, Chen Yi. *Comparative Research on Cultural Innovation* (33), 20-23. doi:CNKI:SUN:WCBJ.0.2020-33-007.
- [5] Chen Wenjun, Yu Ying, Sue Ann Lee & Ma bosen. (2022). *Remote diagnosis and treatment of children with autism spectrum disorders in foreign countries: Status and enlightenment. Special Education in China* (01), 68-74. doi:CNKI:SUN:ZDTJ.0.2022-01-010.
- [6] Liu Hengshuang & Huang Tiande. (2021). *Foreign research advances on environmental risk factors for autism spectrum disorder. Study on Persons with Disabilities* (03), 87-92. doi:CNKI:SUN:CJRY.0.2021-03-011. Dong Pei, Liu Jie, Li Lian, Wang Panning & Xu Sheng. (2021).
- [7] Roman Urrestarazu Andres & van Kessel Robin.(2022).*Inaccurate prevalence estimates impacts autism policy: A letter to the editor in relation to "Global prevalence of autism: A systematic review update" by Zeidan et al. (2022).. Autism research : official journal of the International Society for Autism Research*(7). doi:10.1002/AUR.2734.
- [8] Daphne C. *Resilience in Family Caregivers of Adults With Autism Spectrum Disorder: An Integrative Review of the Literature. Innovation in Aging*,2021,5(Supplement1).
- [9] Collins Josephine, Barnoux Magali Fleur & Langdon Peter E.(2021).*Autistic adults and adults with intellectual disabilities who set fires: A systematic review. journal of applied research in intellectual disabilities* (5).
- [10] Rydzewska Ewelina, Dunn Kirsty & Cooper Sally Ann.(2021).*Umbrella systematic review on comorbid physical conditions in people with autism spectrum disorder. journal of applied research in intellectual disabilities* (5).
- [11] Richardson Sarah S.(2022).*Intelligent Love: The Story of Clara Park, Her Autistic Daughter, and the Myth of the Refrigerator Mother* by Marga Vicedo (review). *Bulletin of the History of Medicine*(4).