

Cross-Cultural Differences in Autism Spectrum Disorder Symptoms

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Abstract: Autism spectrum disorder (ASD) is a set of neural developmental disorders, which is one of the severe issues that affect the society widely and seriously. ASD is a disorder involved with various genes, and its severity can also be influenced by environment. ASD has been a heated research topic around the world, with several elements as the major symptoms, such as challenging behaviors, field-dependence, language coordination, and social skill impairment. However, little is known about whether these elements vary in different ethnicities or racial backgrounds. This paper aims to analyze and integrate previous studies to discuss whether certain symptoms are closely related to cultural backgrounds and vary across different cultures. This paper discussed studies in North America (e.g., the United States and Cuba), Europe (e.g., United Kingdom), Middle East (e.g., Israel), and East Asia (e.g., Hongkong and South Korea). Some ground principles were concluded about the variations of ASD symptoms across distinct cultures, which could provide some suggestions for clinical practices. One of the limitations of earlier studies is that they mainly focused on the cross-cultural difference within a certain developmental period in ASD. Future studies can conduct more longitudinal experiments to investigate the different developmental paths in ASD across distinct cultures. This review can provide a guidance to the design of intervention programs for children with ASD at schools across distinct cultures.

Keywords: Autism Spectrum Disorder (ASD), cross-cultural differences, social skill deficits.

1. Introduction

Autism spectrum disorder (ASD) is a series of neurological developmental disorders that is one of the most severe issues that widely affect the society to a significant extent for a long time. ASD is clinically defined as social and communicative impairments accompanied with a series of behaviors that are characterized by abnormal and inflexible or repetitive patterns. Among the children aged 1 to 3 years old, with early detectable symptoms, the occurrence rate is about 20 out of 10,000 [1]. Although the exact cause of the ASD is still unknown by now, research in genetics and environmental factors show that they both contribute to the development of ASD. Children with ASD tend to experience and show deficient and inappropriate behaviors in terms of social skills, such as flat social responses, the absence of mutual emotional and social benefits, insufficient eye

contact, lack of joint attention, and a lack of interests in other social counterparts [2, 3]. Study showed that there are quite many unfavorable consequences due to lack of proper social skills in ASD. Especially, young children with ASD are not likely to have a typical relationship or friendship with peers throughout the course of development. Problems can also arise in academic, occupational, and independent living settings, as these impairments persist into later developmental stages. Moreover, impaired social skills can lead to a series of challenging behaviors (e.g., tantrums, aggression, and property destruction). As these deficits are pervasive and are core components of ASD, some researchers suggest that social skill training is extremely important for individuals with ASD.

It has been replicated in many previous studies that people with ASD have problems to recognize and understand other people's expression of feelings. Plus, the way they use to express their own emotions is also inappropriate in social situations. Some theories stated that a problem in social brain network is responsible for the development of ASD, which controls motivation and cognitive process [2]. Over the last few years, more researchers agreed that the emotion related difficulties in ASD should be understood with reference to atypicality in social processes. It indicates that in ASD, social cognition impairment only affects social related emotions, while more and more evidence showed that ASD is connected with more common elements in terms of emotions. In the previous study, Gaigg questioned the theory and claimed that the social perspective of ASD is more like a concept of domain general difficulty that causes problems in the cognition of the world and influences the way of learning of a young child [2]. The study of ASD is therefore a great topic for understanding the developmental mechanism underlying the interaction of emotion and cognition.

ASD can be recognized by a pattern of symptoms and is usually found around 2 years of age [1]. The symptoms of ASD are categorized by two major categories: the primary and the secondary symptoms. The primary symptoms include defected linguistic and cognitive skills and social interaction, as well as the presence of atypical behaviors. Plus, secondary symptoms consist of a series of complications, including hyperactivity, self-injury, aggression, and comorbid disorders, such as anxiety and depression. These symptoms often vary due to the age of the individual. In terms of financial cost, ASD can be a heavy burden to the family. Through the life of an affected child, it could cost much as USD 2.4 million, with the expense on psychologists, speech coaches and other therapies. In addition, children with ASD often suffer from conditions like depression, seizure and anxiety, etc. It is especially important to diagnose the patient early to have effective interventions, including language skills and social abilities trainings.

This review focuses on the connection between the ASD symptoms and the distinct cultural background, whether the similar or distinct cultural elements could lead to similar phenotypes or variations. Based on previous studies, this paper also aims to analyze the sociocultural and psychological factors in ASD to figure out the inner connections, under the wider understanding of the sociocultural context, in which children with ASD, their family, and their related social network are connected. On one hand, the social economic elements and cultural models widely existed, and the social network includes the close connection between the children and other family members, including and not limited to parents, guardians and other social members in his or her life [2]. ASD has been a heated research topic around the world, with several elements as the major symptoms that have been continuously studied and treated in medical practice, such as: field-dependence, language coordination, social skills impairment. On the other hand, little is known about whether these elements vary across different ethnicities or racial backgrounds due to distinct cultural factors. This paper aims to integrate and discuss findings of previous studies regarding this topic to reach a general conclusion. This review included studies that compared at least two vastly different countries, socially and culturally, and analyzed parental attitudes (i.e., the parents' attitude toward the child), attachment styles (the relation between the child and his or her parents), and the social

network of a child in and outside of the family. Regarding the psychological processes involved in ASD, this paper focused on two aspects that are the main emotional and cognitive skills in the communication processes affected by the autistic syndrome: (a) the ability to understand and recognize his or her own emotions and those of others and (b) the ability to attribute mental states to others. This review can provide a general guidance to intervention programs at schools to incorporate the cultural elements in curriculum for children with ASD.

2. Cross-Cultural Differences in Language and Cognition of ASD

2.1. Cultural Influences in Language Development of ASD

With the intention of figuring the early symptoms presented in as early stages as toddlers, and whether it could change from a different ethnic minority background or a non-minority background, a previous study compared minority to Caucasian children and their custodians on statistics from multiple scales and questionnaires [4]. Minority children scores lower in language, social interaction, and gross sports than other groups. Findings indicate that obscure communication delays are harder to discover by parents of minority infants, and that more significant delays are needed to prompt the search for intervention services. In addition, the parents of minority children can be helped in giving their children better development with their own culture, when with a understanding the role of parents and the cultural background and communication styles. With all the tests and data, differences found in ASD cases across cultures in time of naming and relocation have influences on language understanding manner of ASD [5]. Connection between linguistic standards have been shown with evidence showing low leveled synchronization of voice and eye contact during rapid automatic naming that were related to speaking skills in ASD. This study studied whether rapid automatized naming problems in autism spectrum disorder developed to a language different from English, because it is common that people with ASD suffered from automaticity problem often with their close relatives, to see whether the verbal ability could change in a different type of language used. Participants included 23 Cantonese-speaking individuals with ASD and 39 controls from Hong Kong (HK), and age- and IQ-comparable groups of previously-studied English speaking individuals with ASD and controls from the US. Participants completed RAN on an eye tracker. Analyses examined naming time, error rate, measures of eye movement reflecting language automaticity, including eye-voice span (EVS; location of eyes versus the named item) and refixations.

The HK-ASD need more time in naming refixation than HK-Controls, in a pattern similar the US ASD group also presented. It is clear that both HK and US group show lower ability in the test of naming time and refixation. It is also suggested that a potential visual stickiness may be contributing to this language automaticity in ASD. Additionally, in some less social language anomalies, similar differences also could be found, children with dyslexia, and cross-cultural children in ASD. At last, it is also shown that different stages of brain development could be related to naming skills, and that myelin production and language development can lead to increases of rapid naming skills.

2.2. Cultural Impacts on Cognitive Development in ASD

Field-independence, or weak coherence, is a typical symptom of autism spectrum disorder [1]. A normal people with field dependent can sense the context of a scent with a worldwide perceptual style. On the other hand, one being field independent, would break away the context to the basic parts and has more local perceptual style. Another cultural variation of the style is called neurotypical individual, who more often from Western nations than East-Asian nations Western

nations carried out most of these style research, so whether this is a universal concept or not is still unknown. Study has shown that perceptual style can form in childhood with the social standards for parent-child interaction. In developmental psychology literature, the term weak central coherence (WCC) was introduced to describe and expand the notion of field independence, and is the more frequently used term in ASD research.

As discussed in the introduction social structure has been suggested to influence the development of field-independent/field-dependent perceptual styles. It has been suggested that perceptual style may develop during childhood in-line with social norms for parent-child interactions. American mothers called names of toys and point out their qualities more than Korean mothers, on the other hand, who focus attention on context and the connections between objects [6]. These subtle differences between these early interactions may lead to significant divergence in later perceptual style. On the contrary, Bagley watched the learning subjects in East Asian area, where the written language requires a more complex way of arranging symbols and strokes for each words, may cultivate disembodied abilities. And, with the observation of well-educated and less educated parents to recognize incomplete shapes, or levels of figures, the level of school education also show close relativity with visual cognition. While all the participants in our sample were in the process of schooling, the curriculum is simply likely to be different across groups, and this may have impacted on their disembedding ability. This study is not able to explain all the environmental elements that influences the disembedding ability. Nevertheless, further studies that investigate perceptual style in ASD should aim to consider such influences on both the participants with ASD and also the TD control sample.

3. Cultural Influences on Social and Behavioral Functioning in ASD

3.1. Cross-Cultural Differences in Social Development of ASD

It is true that we need special tools for certain measures to locate social problems in the primary features of young ASD children. ASD may differ according to the different nations and cultures, since social skill impairment has become a main component with the news covering of the issue. The study by Sipes and colleagues took 160 ASD children from United States and United Kingdom, to measure 3 elements of hostility, appropriateness and inappropriate assertiveness according to the MESSY II [7]. First, the measurement is internally reliable completely. Moreover, the second subscale, adaptive/appropriateness, showed more significant differences, which is US children with more adaptive social skills. On the other hand, two groups all are in social impairment as severe level. And the other two subscales didn't show many differences among the US children and UK.

In order to find some other culture related features, another research on children and adolescents from United States and South Korea, used MESSY II and the score show statistical differences on the 3 subscales of hostility, adaptiveness/ appropriateness, and inappropriateness, but showed the children on the same impairment level [8]. Thus, these different symptoms are generally of the same nature across the nations, though treatment of any individual should be assessed with specific diagnosis. In general, in the US, South Korea and Israel, there are certain occurrence of severe challenging behaviors, with few select challenging ones, which are consistent to a large content.

Children from US always show elevated level of challenging behaviors, in presence and severity, comparing to South Korea or Israel, when there are any major differences, which are mainly external factors. As in 3 countries, a variation of symptoms occurs consistently as a level of challenging behaviors. The question of relation between challenging behaviors and ASD in US may not exist in another culture. What's more, the challenging behaviors may not be less affected by the language barrier than the translation of ASD symptoms. At last, since it may strongly slow down the

treatment of ASD with presence of challenging behaviors, the knowledge of the behaviors are quite important when intervention treatments are used.

3.2. Cross-Cultural Differences in Behavioral Functioning of ASD

It is very common to see challenging behavior in ASD children. And a lot of research have been carried out to find many effect factors on the appearances of challenging behaviors. But the culture related elements are not a key focus so far. Chung's study was to research the different amount of challenging behaviors with ASD children among different nationalities, the United States and three other countries: South Korea, Israel, and the United Kingdom [9]. Not much differences occurred, only with higher level of presence and severity in US. Plus, the United Kingdom and US differed nearly half of the behavior items. All in all, in terms of challenging behaviors, the ASD symptoms appeared to reasons for the level of challenging behaviors in most circumstances.

In terms of the processes of cognition style and effect, emotional competence, and the mother/father child attachment, in both countries a great variation was shown between children with ASD and the control groups, which is typically developing children showed a better performance. Cross cultural differences rarely show between the ASD and control groups. This study involved children from Italy (30) and Cuba (22), to check the different cross-cultural influences of parent attitudes, styles of attachment, social networks and other psychology factors in ASD [10]. The results showed that the parent attitudes on children and the social network formation are closely related cultural elements, while the maternal attachment to child, and emotion/ cognition functions not affected.

Firstly, it seems paradoxical for the Cuban social structural collectivism and Italian individual way of life. But according to the difference between Italian and Cuban cultures, the Italian social network and parental attitudes are much more complex than the Cuban ones, since the Italian children's social network appeared larger as the vast number of technical figures, pediatricians, social workers, etc. They frequently support the emotional environment of the children's caregivers. In addition, though children in Cuba owned a smaller social network, their highly frequent social contact and multi-role figures in it contribute more to overcome the shortcoming.

4. Conclusions

This paper discussed the cross-cultural connections and differences that reflected in ASD symptoms. According to the previous research, minorities and non-minorities show different patterns in the symptoms. Children in minority group are more delayed in language and communication areas, based on parents' reports and clinical measure. And the study in Southeast Asia shows no connection of field independence with ASD symptoms, indicating that these symptoms are not universal. Moreover, a previous study of Western and non-western individuals with ASD showed that they performed differently in rapid naming process. The HK-ASD performed similarly, and in some areas cultural elements are involved. To conclude, cultural factors have significant impacts on the variations of ASD symptoms. One limitation of previous studies is that they mainly conducted cross-sectional research. Future studies should examine the long-term impacts of cultural differences on ASD symptoms. This review can provide some insights for the research and practice in the ASD field. Cultural factors should be incorporated into intervention programs at schools.

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