Analyses of Obstacles That Individuals with Autism Meet and Related Factors

Hanchun Jiang[1,*]

[1]*Faculty of Science, Chiba University, Japan, 274-0825*
Corresponding author. Email: 20s1010x@student.gs.chiba-u.jp

ABSTRACT

Autism is a developmental disorder characterized by deficits in social interaction and communication, and restricted, repetitive interests. As a minor group with deficiencies, they have long been misunderstood and even discriminated against which contributes to a weak position. In addition, given the significant increase in its prevalence since it has been reported, there appears a greater necessity to gain a better understanding of this condition. To better understand the obstacles and related factors encountered by autism people, the author consulted the relevant literature and systematically analyzed the related problems encountered by autistic patients according to the existing information. The result shows that the obstacles includes female individuals' misdiagnosis, sensory problems and selective attention, reading barriers and unemployment. Despite that autistic individuals experience difficulties which are barely known by the majority of people, they also show talents what they are interested in. They pay attention to details, patterns, and things that are normally overlooked. It will be beneficial for these autistic people for their families and society to help them enter the workplace.

Keywords: Autism, Selective Attention, Sensory Processing, Reading barrier, Mental health

1. INTRODUCTION

Autistic Spectrum Disorder (short for ASD) is neurodevelopment conditions diagnosed by social and non-social symptoms. It usually characterized by difficulties in communication and relationships, unusually narrow interests and strongly repetitive, restrictive patterns of behaviors. The prevalence of autism has been estimated at 13/10,000 and is believed to be rising. Until now causes are largely unknown, but both genetic and environmental factors acting during the perinatal time period are implicated, and none of the treatments nowadays can eliminate the symptoms.

There is no doubt that autism adversely affects functioning in communication, socialization, and behaviors. It is easy to conceive that social impairments cause isolation, and outrageous behaviors lead to discrimination and being excluded by the collective. However, lack of public understanding and misconceptions commonly exist, and can contribute to loneliness and poor mental conditions of individuals. Even people who work closely with them can hold unconscious biases. To enhance public understanding and acceptance, the author summarized obstacles that autistic individuals meet and are overlooked or barely known by the public. Therefore, it can attract people's attention.

Through reviewing papers on topics of sensory processing, mental health, female autism, employment, interventions, some distressing problems are summarized. While social isolation is widely known among the public, underestimate of female autism, selective attention, reading barriers, co-occurring mental problems, employment problems are hardly known. These issues will be investigated in this paper. Besides, as a minority, the image towards autistic people has long been negative. However, their strengths on selective attention, focusing on details, visual processing have constantly been reported. In a strength-focusing view, these talents do not need a cure and can be utilized to benefit society.

2. ASSOCIATED PATHOGENESIS AND PROMISING INTERVENTIONS

ASD can be classified into classic Autism and non-classic Autism on the basis of symptoms. In classic Autism, there are high-functioning conditions and low-functioning conditions which are divided by IQ 80. In non-classic Autism, there is Asperger's Syndrome

which distinguishes from other types of Autism for strong verbal language skills and intellectual ability, PDD-NOS (Pervasive Developmental Disorder- Not Otherwise Specified) at which the individual may have symptoms in one core area but has milder symptoms in other core areas, and Rett syndrome, which is depicted by slowing of head growth and repetitive hand movements.

2.1. Related studies

The etiology of autism has remained an intriguing topic to researchers. If the causes of autism can be identified, enhanced screening and therapies must be developed to potentially prevent, treat, or cure the disease's symptoms. Currently, it is accepted that autism is resulted from both genetic and non-genetic factors, but yet specified to any particular reasons.

(1) Epilepsy and TSC (Tuberous Sclerosis Complex) are shown to be co-occurring with autism frequently. Epilepsy is hypothesized to be connected with autism, due to the fact that it is known to happen to up to 1/3 individuals of ASD by adulthood. Like autism, epilepsy is considered to be caused by genetic and non-genetic factors and is exhibited by a range of phenotypes. In addition, it is not surprising that as many as 25% autism patients are revealed to have TSC, considering that epilepsy frequently occurred in TSC. TSC rates of 1.1% to 1.3% is shown in autism population, which is 30% higher than in general population. However, despite the association between autism and some diagnosable diseases, these cases only account for a small percentage of autism, and the rest of cases can not evidently be related to other conditions [1].

(2) Compared with the prevalence rate in the general population, the recurrence rate in siblings of affected children is reported to be 2%-8%. Also, according to twin studies, while the concordance for typical autism in monozygotic twins is claimed to be 60%, that in dizygotic twins is 0. If the phenotype of autism is broadened to include communication and social disorders, the concordance in MZ twins and DZ twins is remarkably increased to be 92% and 10%. This indicate that autism is strongly connected to genetic inheritance, environmental factors may function as modifiers [1].

(3) Steroid hormones is revealed to facilitate brain development, with estrogen being considered to enhance growth and differentiation fo neuritis and formation of neural networks. Prenatal levels of two hormone markers and a protein maker are investigated, which are unconjugated estriol (uE3) , human chorionic gonadotropin (hCG), and alpha-feto- protein (MSAFP), which function as a plasma-binding protein for steroids and is found in human neurons. In light of the importance of fetal development, the level of 3 makers

in pregnancy are proposed to associate with ASD of the infant. To elucidate the etiology of autism, some researchers deploy the data from California statewide files, and they revealed that the higher level of uE3, both extremely high and low level of hCG, lower level of MSAFP are relevant to giving birth to an autistic baby [2].

(4) As the prevalence of autism has been significantly rising, environmental factors are considered to be linked with its cause. Studies have shown that areas with high prevalence are often areas that emit large amounts of heavy metals, such as some coal-fired plants and long-term power plants. Also, infants with mercury poisoning also have autism symptoms, which associates a high amount of mercury with autism. The concentration of mercury is possible to derive from physical exposure or decreased ability to excrete. As for the former reason, both closeness to contaminated areas and intake of seafood are associated. In terms of the latter, glutathione, which functions through binding mercury for excretion, is found to be less in autistic children compared to neurotypical ones [3].

2.2. Promising intervention of autism

After long-term research, it is found that early diagnosis and intervention can greatly improve the long-term prognosis of children. Robot-based therapies have potential to help regarding the treatment. When interacting with robots, children with the spectrum are observed to present social behaviors, such as imitation, eye gaze, joint attention. In contrast to the fact that human expressions or behaviors contain so much information that cause autistic individuals feel overwhelmed, mechanical objects like toys and robots are simple and predictable. Autistic children have been shown to pay more attention to robots, and to imitate robots better than to imitate humans. Besides, robots can be conducive in diagnosing a child at early stage by repeating the actions during evaluation, encouraging the child to initiate an interaction, building joint attention and so on.

The potential of early and repeatable diagnosis and social skills shown by these children when interacting with robots are very eye-catching, which is worthy of further research on the best way to use robots in the field [4].

3. MAJOR OBSTACLES OF AUTISTIC PERSONS

3.1. Skewed sex ratio and female autism

The most commonly reported male:female ratio of ASD diagnoses is 4:1. A wide range of hypotheses regarding the etiology of the gender discrepancies have

been proposed. Among the hypothesis, some researchers presume that the ways autism is expressed in females show differences with male phenotype, which contributes the underestimate the existence of ASD in female individuals [5]. Concerning the current diagnostic procedure, it can be considered that the criteria and assessment tools we use nowadays are based on previous cases, where males were predominantly more than women. This fact contributes that female individuals are less likely to meet these criteria, considering gender differences that might exist. Speaking to the variation of expression in females, firstly, with regard to the social barriers, autistic females may show fewer social difficulties but find it harder to maintain long-term relationships than autistic males. Conflicts in social relationships may occur more often than in non-autistic females. Secondly, narrow interests and obsession may be demonstrated by topics with relational purposes. Autistic female individuals may be obsessed with animals, fictional characters or psychology, which are usually viewed as appropriate for girls. Thirdly, there are internalizing problems exist, which are expressions of emotional difficulties, including anxiety, depression, self-harming and eating disorders [5].

According to preliminary research, later diagnoses are related to worse outcomes, and the practice of camouflaging is accompanied by poor mental health. Later at some time, women individuals can be diagnosed with broader mental conditions, instead of autism only. Therefore, adapted criteria and assessments are supposed to be made in order that females will not miss diagnosis and be deprived of the support. Also, except the phenotype mentioned above, future studies should figure out other expressions of female phenotype and camouflage. Camouflaging strategies that facilitate social interactions and ones that harm self-esteem should also be investigated.

3.2 Sensory sensitivity and selective attention

In the past, scientists had highlighted the social impairments more. In recent years, studies focusing on the field of sensation have found that ASD patients of all ages and symptom severity have reported abnormal sensory processing, which has an adverse impact on daily function and academic performance.

Deficits in sensory processing have been linked clinically with impaired attention, arousal, and impulsivity. In a study where the relationship between sensory processing and ADHD is investigated, sensory processing is confirmed to be positively associated with ADHD. Also this study indicates that sensory sensitivity is part of the ADHD phenotype and attentional deficits are hopeful to be controlled by targeting sensory problems in the future [6].

Attentional deficits cause the ASD individual to be bombarded with excessive information and not be able to filter, leading to sensory overload. For most ADHD children, it is difficult for them to concentrate on doing something. Autistic children are different from them. Surprisingly, they can focus on the activities they are interested in. They can even spend hours spinning ropes, jigsaw puzzles, drawing duplicate pictures or reading books.

In a typical autism, this hyperfocus demonstrates as the individual having intense interests in several fields, diving right in, doing a lot of research like falling into a rabbit hole. Selective attention has been investigated to be related to perceptual load capacity. When perceptual capacity is low, an individual with autism can perform the task without processing distractors. When perceptual load capacity is high, the autistic group can perform tasks with more distractor processing than control group, and without reduction in performance. This increased ability can explain superior visual search abilities that have consistently been found among individuals with ASD [7]. Future study can view selective attention and enhanced perceptual capacity as strengths and find out how ASD individuals can utilize their talents to enhance their quality of life.

3.3 Reading barriers

Reading comprehension is an important skill that all children should master, and reading for understanding poses challenges to individuals with ASDs, which demonstrates as being skilled at word recognition but less skilled at comprehension.

Autistic children often show good word recognition ability without corresponding skills in constructing meaning (termed hyperlexia). It is well known that autistic children have "weak central coherence" or detail oriented or single word processing style, which makes it difficult for them carry out overall text cognition [8].

According to early researches, children in the spectrum are found to be able to interpret sentences in a manner similar to typically developing children. In addition, in a functional magnetic resonance imaging study, the parietal and occipital regions of the brain in patients with high-functional autism showed more activation than those in the control group, indicating that patients with autism use more visual images to understand sentences than those in the control group.When it comes to comprehension at text level, autistic individuals are found to lack cognitive skills, for example abstract reasoning, consequently incompetent in narrative reading and retelling a story with causal links.

However, due to the tendency of paying attention to details and strictly following the rules to make inferences, individuals in this spectrum can be

hopefully guided to use inferences skills to get a coherent understanding and organization. Autistic children can especially benefit from interventions addressing particular cognitive processes, such as locating antecedent events, generating and answering questions, locating referents, and rereading to repair understanding [8].

Acquiring reading competence is important for academic success. Future study should focus on designing and evaluating interventions specifically addressing the processes and skills that is contributive to reading for understanding, so that individuals in this spectrum can overcome academic difficulties and obtain better outcomes in their life.

3.4 Mental health problems

Compared with the general population, the simultaneous mental health status of autistic people is more common. Up to 70% of autistic patients are diagnosed with at least one mental disease besides autism, and nearly 50% are diagnosed with several simultaneous mental health problems [9] For autistic patients, the simultaneous occurrence of mental health status increases the possibility of deterioration of long-term results. For instance, the co-occurrence of autism and ADHD is associated with greater impairment of adaptive function, health-related quality of life, and executive functioning, instead of autism alone. Similarly, co-occuring anxiety intensifies the symptoms of autism, including social barriers, sensory problems, and repetitive behaviors, and might be associated with the development of depression, resulting in increased risk of suicide and early mortality [9].

According to a research that examined the relationship between mental health and acceptance, autism acceptance can be defined as an individual feeling accepted or appreciated as an autistic person, with autism positively recognized and accepted by others and the self as an integral part of that individual. It is reported that acceptance from family and peers is negatively associated with depression and loneliness. Personal acceptance refers to being accepted for being "who they are" and take pride in being neurodivergent. Researchers also states that self-acceptance is positively associated with self-esteem, and negatively associated with depression. In addition, participants' qualitative responses revealed that camouflaging, which refers to the practice of pretending to be non-autistic, often occurs among autistic individuals, and predicts poor mental health. Considering the limitation that this research appealed predominantly more women than men and we can imply that women individuals' suffering is beyond public understanding [10].

3.5 Employment

In a program where autistic trainees are gathered to complete tasks with monitoring and support, the individuals and their family members claimed that difficulties mostly lie in distractibility and maintaining attention. Also, the trainees reported concerns about technical difficulties. Due to the oversensitivity, they can be easily disturbed by noises and lights. It's proved that allowing them to cope with it in their own way is better. For example, they can really avoid noises by putting on earphones. Also, according to support staff, to communicate effectively, they should be mindful to use sarcastic comments, and give direct and literal opinions instead [11].

Employment brings about positive changes, which are concerned with awareness of their condition, social relationships and self-independence. It is inspiring that trainees in this spectrum knows better about autism from their colleges in this spectrum, and can form a relationship. They can come out of their shell to interact with others and the relationships with family members are shown to ameliorate. Moreover, the work routine and salaries bring them to the normal life where they don't seem to have many differences [11].

Trainees participated in program are evaluated to have the ability at detecting errors, which consequently help deal with problems. Considering the huge expenses on the welfare of people with autism, positive changes they can acquire, as well as the attentive and committed attitude, it is conceivable to find out a way to get them to engage in employments which match to their abilities. Future study should find more of their strengths in workplace, so that they can participate in jobs to apply their talents. Also, appropriate working setting should be further investigated and external support on technical problems and counseling should be standardized to facilitate their success in workplace.

4. CONCLUSION

In conclusion, autistic individuals can face varieties of difficulties. Knowing their suffering can raise public awareness. Stereotypes and now existing criteria leave larger numbers of female autistic individuals undiagnosed. Compared to social impairments, non-social ones like atypical sensory processing are easily neglected, which can be linked to selective attention. Reading barriers often occur, negatively impacting academic competence. In addition, Autism may increase the likelihood of major mental illness, making them more vulnerable. Through self-acceptance and acceptance externally, autistic individuals are more likely to remain a healthy mental condition.

Focusing on strengths instead of weaknesses is the central idea of the concept of positive psychology. This

suggests the importance of identifying and fostering the positive capabilities of individuals rather than trying to erase weaknesses. Despite that people on this spectrum usually receive prejudices, they have been reported to have remarkable attention to detail, the ability to focus on a small topic for long periods, and to see repeating patterns — and these human qualities are not in need of treatment. The image towards them need to be changed. Also in an economic view, have them participate in work, capitalize on their strengths, probably facilitating the success of work with their characteristics. Hopefully, someday the spectrum will be viewed as a variation of human, instead of a deficiency. In the future, studies can shed light on comprehensive strengths of autistic people, and explore ways to fully utilize their talents. Further studies can investigate if there are certain areas of jobs favorable to autistic people and how to standardize the working environment for them.

There are some limitations in this paper. For example, in the analysis, there are few actual cases. In the future research, the author will analyze more practical cases to explore the future development direction of autistic patients.

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