



Review on Changes in the Prevalence of Children with Developmental Disorders in Japan and the Importance of Grasping the Actual Situation in Mongolia

Nomura Kenji¹(✉), Yokoyama Kana¹, Kaneko Hitoshi¹, Dandii Odgerel²,
and Nagata Masako¹

¹ Psychological Support and Research Center for Human Development, Nagoya University,
Tokyo, Japan

nomura@cc.nagoya-u.ac.jp

² Teacher's School, Mongolian National University of Education, Ulaanbaatar, Mongolia

Abstract. Children with developmental disorders, including Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), have been the cause of growing concerns in many countries and regions over the past several decades. Such children are considered examples of children who require educational additional support in school and are positioned as one of the main targets of specialized education support. In Japan, the prevalence of ASD in particular is reported to be increasing. Looking at findings from recent epidemiological studies of developmental disorders, the prevalence of ASD has increased from 0.5–1.0% in the 1990s to 1–3% in recent years, while the prevalence of ADHD has not changed significantly from about 5%, although there are considerable differences by regions and survey method. In Japan, a nationwide survey conducted by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) in 2012 found that 6.5% of elementary and junior high school students in regular classes were suspected of having developmental disorders. The revelation of such a large number of children with developmental disorders led to a dramatic increase in measures to support such children and the provision of special needs education in school education. In order to build the necessary support systems for children with developmental disorders, it is very important to understand how many children are in need of support and the specific kinds of support they require. Therefore, we have been conducting joint research to establish support systems for children with developmental disorders in Mongolia. As part of this project, we are preparing to conduct an epidemiological survey on children with developmental disorders in this region. In this study, we intend to develop assessment tools in order to determine the prevalence of developmental disorders by conducting questionnaire surveys of 4,000 children, as well as their parents and teachers, in several regions of Mongolia and then conducting diagnostic interviews with 200 children selected by psychiatrists from the survey results.

Keywords: Developmental Disorders · Special needs education · Autism Spectrum Disorder · Attention Deficit/Hyperactivity Disorder

1 Developmental Disorders

Children with developmental disorders, including Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), have been the cause of growing concerns in many countries and regions over the past several decades. Such children are considered examples of children who require educational additional support in school and are positioned as one of the main targets of specialized education support. In Japan, the prevalence of ASD in particular is reported to be increasing.

Autism Spectrum Disorder (ASD) belongs to a group of neurodevelopmental disorders characterised by the following two core features: social communication and repetitive sensory-motor behaviours [1]. Symptoms can be identified from early childhood but may change with the growth and development of the individual. Nevertheless, the symptoms continue to interfere with their social development throughout their life. Although many individuals with ASD are able to speak, read, and live in the community, they may have difficulties in obtaining full-time employment or living independently. The global prevalence of ASD is approximately 1% [1].

Attention-Deficit/Hyperactivity Disorder (AD/HD) is another common disorder that presents in childhood and is often associated with significant impairments in academic performance and social functioning. The defining feature of AD/HD is the presence of a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. AD/HD is also associated with disrupted parent-child relationships and increased stress levels for parents and teachers. AD/HD often persists into adulthood and is a risk factor for other negative outcomes, such as educational underachievement, difficulties with employment and relationships, drug abuse, and criminality. The prevalence of AD/HD is approximately 5% (American Psychiatric Association, 2013), with some studies reporting it to be even higher [1].

Developmental disabilities in Japan are defined in the Act on Support for Persons with Developmental Disabilities, which came into force in 2005, as “the following disabilities prescribed by government ordinance and of which the symptoms usually appear at a young age: autism, Asperger’s syndrome and other pervasive developmental disorders (PDD), learning disabilities/disorders (LD) and attention-deficit hyperactivity disorders (ADHD) and other similar cerebral dysfunctions.” The key points are that the disabilities are defined as “cerebral dysfunctions” and that “the symptoms usually appear at a young age.” These are “cerebral dysfunctions,” the maladjustment is caused by congenital disabilities, and the problems are in no way caused by lack of motivation or malicious intent on the part of the children themselves, or by problems in family upbringing. Also as “the symptoms usually appear at a young age,” in order to make a diagnosis regarding developmental disability, the children’s situation before they enter the school must be fully ascertained. A growth history starting from the early stages after birth will be very important.

Looking at findings from recent epidemiological studies of developmental disorders, the prevalence of ASD has increased from 0.5–1.0% in the 1990s to 1–3% in recent years, while the prevalence of ADHD has not changed significantly from about 5%, although there are considerable differences by regions and survey method [2–7].

2 Current Status of-Children with Developmental Disorders in Japan

Understanding regard to children with special needs in Japan began with research into children with learning disabilities. Through work with children with LD (Learning Disabilities), it has become clear that in no small number of cases are ADHD or ASD [8].

The Ministry of Education, Culture, Sports, Science and Technology conducted a nationwide survey with regard to developmental disabilities in elementary and junior high schools, for use as material for considering support for children with developmental disabilities in schools in 2012.

The survey targeted 53882 students enrolled in regular classes in elementary and junior high schools, in almost all prefectures in Japan. The survey was in the form of a questionnaire whereby teachers answered questions about the children they were responsible for in their classes.

The following three questionnaires were used.

- (1) Learning aspect: Survey for diagnosing LD (LDI-R)
- (2) Behavioral aspect: ADHD evaluation scale (ADHD-RS)
- (3) Behavioral aspect: Screening questionnaire with regard to high-functioning autism (ASSQ)

The results were that 6.5% of children (9.3% of boys, 3.6% of girls) show significant difficulties with regard to learning or behavior despite having no delays in their intellectual development. The details are as follows.

- (1) Shows significant difficulties with regard to learning or behavior: 6.5%
- (2) Shows significant difficulties with regard to learning: 4.5%
- (3) Shows significant difficulties with regard to behavior: 3.6%
- (4) Shows significant difficulties with regard to both learning and behavior: 1.6%

A summary of the results is as follows.

- (1) 6.5% of children were found to show some kind of developmental disability tendencies. There were approximately 2.6 times more boys than girls.
- (2) With regard to the learning aspect, these tendencies decrease as the grade increases. This is thought to be related to the fact that things that the children achieve as they accumulate learning are included among the question items.
- (3) With regard to ADHD tendencies, it was found that they decrease as the grade increases. The causes of this may be that the understanding of students and teachers around them deepens, so the children settle down; that by accumulating experiences through school life, the children become able to adjust to school; and that as the grade increases, it is possible that the various problems pile up and become difficult to see.

- (4) On the other hand, with regard to ASD tendencies, no significant change was found even as the grade increased. Some kinds of characteristics remain even as the children grow up, so continuous support is considered to be necessary.

3 The Challenge of Grasping the Actual Situation in Mongolia

In children, early detection of ASD and AD/HD in children is crucial since prompt monitoring of their development may allow them to fulfill their potential. Many children with ASD and AD/HD remain undiagnosed and are treated in a similar manner as other children at home and school. Consequently, this leads to serious maladjustments later in the affected people's lives, such as educational underachievement and loss of employment, which could have been avoided if they had adequate and appropriate support. Providing support tailored to the developmental characteristics of children with ASD and AD/HD may lead to better transitions in family changes and school entry and leaving.

In order to build the necessary support systems for children with developmental disorders, it is very important to understand how many children are in need of support and the specific kinds of support they require. Therefore, we have been conducting joint research to establish support systems for children with developmental disorders in Mongolia.

As part of this project, we are preparing to conduct an epidemiological survey on children with developmental disorders in this region. In this study, we intend to develop assessment tools in order to determine the prevalence of developmental disorders by conducting questionnaire surveys of 4,000 children, as well as their parents and teachers, in several regions of Mongolia and then conducting diagnostic interviews with 200 children selected by psychiatrists from the survey results.

A two-phase procedure applying different instruments will be used.

Phase 1 will include the use of a parent and teacher questionnaire given to children enrolled between the second and fourth-grade (7–9 years). Four thousand Mongolian children in the second to fourth grades (7–9 years) of elementary school will be recruited, out of whom 1600 children will be from Ulaanbaatar, which is the capital city of Mongolia. The remaining 2400 children will be recruited from the four countryside regions of Mongolia. The comprehensive questionnaire in the Bergen Child Study/BCS [9]. will be used. This comprises the ASSQ, SNAP, and SDQ (see below), and items are rated on a three-point scale (0 = not true, 1 = somewhat true, 2 = certainly true) by both parents and teachers.

Phase 2 participants will be selected from the collected questionnaire responses by Phase 1. By estimating the percentage of incomplete responses to approximately 10%, we will extract the target participants from 3600 response pairs. We plan to make the following three groups: 70 pairs of children and parents from the ASD screening group, 70 pairs from the AD/HD screening group, and 70 pairs from the control group. Each of the three groups has 35 boys and 35 girls. Mongolian psychiatrists specializing in child mental health will conduct a clinical interview with the children and parents. The main purpose of the clinical interview is to confirm whether the child has ASD or AD/HD, based on DSM-5. The second purpose is to screen for other comorbidities, such as mental and physical disorders. Besides the clinical interview by psychiatrists, we will be asking

the children to assess their intellectual functioning. We plan to hold a case conference with the Mongolian psychiatrists based on the interview records of all the children who will participate in this research.

We expect scientifically accurate information regarding the prevalence of ASD and AD/HD in Mongolia through appropriate sampling surveys and direct clinical interviews of children and parents from the entire country. This information is essential for policy-makers and administrators to the formulation of national policies regarding education, medicine, and welfare in Mongolia. Moreover, this research will provide invaluable information to clinicians, teachers, and parents regarding the behaviors of children that should be paid to attention for the early detection and intervention of ASD and AD/HD. This research will elucidate the background problems and associated features of ASD and AD/HD, its findings will enable the formulation of a feasible and culturally appropriate intervention strategy in Mongolia.

Authors' Contributions. All authors collaborated in writing the paper.

References

1. American Psychiatric Association, Diagnostic and statistical manual of mental disorders DSM-5. Washington, DC: American Psychiatric Publishing. 2013. DOI: <https://doi.org/10.1176/appi.books.9780890425596>
2. R. Thomas, S. Sanders, J. Doust, E. Beller, Glasziou, P.m, Prevalence of Attention-Deficit/Hyperactivity Disorder: A Systematic Review and Meta-analysis. *Pediatrics*, 135(4), 2015, E994-E1001. DOI: <https://doi.org/10.1542/peds.2014-3482>.
3. T, Ishii Takahashi, The epidemiology of autistic children in Toyota, Japan: prevalence. *Jpn. J Child Adolesc, Psychiatry*, 24, 1983, pp. 311-21.
4. Y. Kawamura, O. Takahashi, T. Ishii, Reevaluating the incidence of pervasive developmental disorders: impact of elevated rates of detection through implementation of an integrated system of screening in Toyota, Japan. *Psychiatry and Clinical Neuroscience*, 62, 2008, pp. 152-159. DOI: <https://doi.org/10.1111/j.1440-1819.2008.01748.x>
5. Y, Kim, B, Leventhal, Y, Koh et al. Prevalence of autism spectrum disorders in a total population sample. *Am J Psychiatry*. 168, 2011, pp. 904-12. 2011. DOI: <https://doi.org/10.1176/appi.ajp.2011.10101532>
6. V.Lotter, Epidemiology of autistic conditions in young children. 1. Prevalence. *Soc. Psychiatry*, 1, 1996, pp. 124-37. DOI: <https://doi.org/10.1007/BF00584048>
7. G, Xu, L, Strathearn, B, Liu, W, Bao, Prevalence of autism spectrum disorder among US children and adolescents, 2014–2016. *JAMA*. 319, 2018, pp. 81-82. DOI: <https://doi.org/10.1001/jama.2017.17812>
8. K, Nomura, Who are children with special needs in schools? 2016, pp. 130-6. Odgerel D., Oyuntsetseg. B., Enkhee D.,(Ed.), Strategies for teaching children with Special needs, Nagoya University/Mongolian National University of Education Joint Support Center for Child Development, Ulaanbaatar. 2018.
9. E, Heiervang, K.M, Stormark, A.J. Lundervold et al., Psychiatric disorders in Norwegian 8- to 10-year-olds: an epidemiological survey of prevalence, risk factors, and service use. *J Am Acad Child Adolesc Psychiatry*, 46, 2018, pp. 438-47. DOI: <https://doi.org/10.1097/chi.0b013e31803062bf>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

