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Prevalence of Neurodevelopmental Disorders in Japanese Children's Homes

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Abstract

This study examined the prevalence of neurodevelopmental disorders among children receiving residential care in Japanese children's homes (CHs). The data on 7854 children aged 18 years or younger were collected using a questionnaire for psychotherapists worked at 174 CHs in all regions of Japan. That included items of diagnostic state and experience of maltreatment. The prevalence of neurodevelopmental disorders was 24% in CHs. The most common type in CHs was intellectual disabilities (11.9%), and the next most was autism spectrum disorder (6.1%). Logistic regression models revealed the children with experience of maltreatment had high risk of autism spectrum disorder, attention deficit hyperactivity disorder, and specific learning disorder. These findings implied differential pattern from previous studies of Western countries.

Keywords

Neurodevelopmental Disorder, Residential Care, Children's Home, Out-of-Home Care, Child Maltreatment

1. Introduction

To establish an effective child protection and care system is an important task for all nations. The Japanese Ministry of Health, Labor, and Welfare (MHLW) (2016) reported that the number of child maltreatment consultations at child guidance centers in 2015 was 88,931, and has been constantly increasing every year. Almost 46,000 children are in out-of-home care, and of those, 27,828 are in children's homes (CHs) as of the end of March 2015. CH is a residential institution for out-of-home care children, and admitted more than 60% of out-of-home

care children in Japan. In Western countries, residential institution in child care system is mainly used for children with mental health problems or other special needs rather than foster care and adoption (Barth, 2005; Courtney, Dolev, & Gillian, 2009). In Japan, contrary to this, CHs are selected as primary care form and generally used even with less-troubled children.

Prior research has suggested that children in child welfare services have high rates of mental health problems. A meta-analysis found that 49% of children in child welfare services have mental disorders, and this rate is nearly 4 times more than the general population (Bronsard et al., 2016). Developmental researchers claimed that out-of-home care for children has the negative effects on cognitive and neurodevelopmental difficulties particularly (Berger, Bruch, Johnson, James, & Rubin, 2009; Pollak et al., 2010). An official Japanese survey also mentions that 28.5% of children in CHs have mental or physical disorders (Equal Employment, Children and Families Bureau, 2015). In this survey, the most common group of mental disorders is neurodevelopmental disorders: 12.3% have Intellectual Disabilities (ID), 5.3% Pervasive Developmental Disorder (PDD), 4.6% Attention Deficit Hyperactivity Disorder (ADHD), 1.2% Specific Learning Disorders (SLD). This survey reported the total ratios in Japanese CHs, but the analysis of predictors and developmental features were lacking.

A large body of research has found the relationship between intellectual development and group residential care for children. Recently, the randomized control research in Romanian children (Fox, Almas, Degnan, Nelson, & Zeanah, 2011) reported children in institutional care showed continuously lower IQs than typically raised children during 30 months to 8 years old. In a large meta-analysis from 19 different countries data, van Ijzendoorn, Luijk, & Juffer (2008) similarly proved delaying intellectual development in institutional children, additionally they found details from multiple moderators. Children under 4 years old showed lower IQ, but the effect size in older children was smaller. Moreover, there were distinctions among socioeconomic levels of countries; children in the countries with a high human development index showed smaller IQ delays than elsewhere. Japan is one of the developed countries, and Japanese residential care system is unique as mentioned above. Therefore, the distinct intellectual development patterns could be expected between children in Japanese CHs and other countries.

Excluding ID, studies of ADHD in out-of-home care have been the most common among neurodevelopmental disorders. ADHD prevalence has been reported between 7.4% to 20% in out-of-home children (Ford, Vostanis, Meltzer, & Goodman, 2007; Lehmann, Havik, Havik, & Heiervang, 2013; McCann, James, Wilson, & Dunn, 1996; McMillen et al., 2005; Meltzer, Gatward, Corbin, Goodman, & Ford, 2003), and in the studies focused on residential care settings, percentages ranged between 3.8% to 22.4% (Bronsard et al., 2011; Jozefiak et al., 2016; Meltzer et al., 2003; Schmid, Goldbeck, Nuetzel, & Fegert, 2008). Studies about the prevalence of Autism Spectrum Disorder (ASD) are comparatively

few. In England, Meltzer et al. (2003) found the rate of PDD as 9.3% in residential care. Studies in Norway reported PDD prevalence as 4.3% in foster care (Lehmann et al., 2013). These studies indicate the prevalence of neurodevelopmental disorders in residential care children range very widely.

In addition, few analyses evaluating age differences of the prevalence are available. It is established that some neurodevelopmental disorders have developmental trajectory in the general population; ASD tends to have continuity from childhood to adolescence (McGovern & Sigman, 2005), but ADHD prevalence decreased in adolescence (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). In residential care children, emotional and behavioral problems have developmental change (Burns et al., 2004; Ohara & Matsuura, 2016). Therefore, it is important to discuss the developmental trajectory of children with neurodevelopmental disorders, in addition to the gender differences a number of studies addressed.

The goal of this study was to clarify the prevalence of neurodevelopmental disorders, especially focused on ASD, ADHD, SLD, and ID that estimated common among children in Japanese CHs. Moreover, we analyzed the distribution of prevalence by gender, age group, and experience of maltreatment to improve the assessment and to review effective care.

2. Methods

2.1. Study Sample and Procedure

This study included children admitted to CHs in all regions of Japan, as of January 1st 2015. CHs are managed by social welfare cooperation or local authorities approved under the Japanese Child Welfare Act. This act also provides the child guidance centers (CGCs) with authority to protect children from any kind of risks and to make a plan of out-of-home care if necessary. All of the children in out-of-home care receive intervention from the CGCs first, and on that occasion, they are assessed by multidisciplinary professions: social workers, psychologists, physicians, and so on. Every child who is suspected of having neurodevelopmental disorders has an opportunity of diagnostic evaluation in child guidance centers. When it was decided that a child should be admitted to a CH, his or her assessment report involving developmental history, psychosocial aspects, medical diagnosis, and other characteristics will be referred to the specific home simultaneously. In the case of children who show signs of neurodevelopmental disorders after being placed into care, CHs can request local CGCs to re-evaluate them, or to refer to another child psychiatry agency.

In CHs, childcare staff handle child rearing directly, and in addition, psychotherapists are assigned to implement psychological assessment and treatment for children. The psychotherapists mainly have a responsibility to utilize psychosocial and medical information from CDCs to customize care plans, and they are concurrently expected to recognize the slightest signs of any disorders from daily behaviors. On these grounds, we considered that the study conducting psycho-

therapists as respondents could improve diagnostic reliability. Psychotherapists working at 600 Japanese CHs were invited to participate in this study in January to February in 2015. All study protocols were conducted in accordance with the ethical principles of the Declaration of Helsinki. We informed psychotherapists and superintendents of CHs about the goal, procedures, and corresponding address of this study with a survey questionnaire.

After excluding data from CHs which declined participation and had missing value, those from 174 CHs were eligible, and the response rate was 29%. Finally, the study sample included 7854 children, consisting of 4239 boys and 3615 girls.

2.2. Diagnosis of Neurodevelopmental Disorders

Diagnostic data were collected from a questionnaire reporting the number of children in their CHs for each neurodevelopmental disorder: ASD, ADHD, SLD, and ID. Classifications of neurodevelopmental disorders in this study were identified from DSM-5 (American Psychiatric Association, 2013). This latest edition of DSM was not yet common among Japanese professions during the period of data collection in early 2015, because the official Japanese version was published in 2014. Therefore, short Japanese descriptions about diagnostic criteria of neurodevelopmental disorders according to DSM-5 was added to the questionnaire. In particular, the criteria of ASD were largely changed from previous edition, and hence it was specifically explained that ASD classification in this study were inclusive of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified, those were diagnosed under DSM-IV-TR (American Psychiatric Association, 2000).

The psychotherapists were asked to ascertain these diagnostic data from child records in their CHs, and respond each number of children.

2.3. Other Data Collection

The questionnaire also included items about gender, age groups, and experiences of maltreatment with children in CHs. Age groups of children were chosen from 4 educational stages in Japan. The age groups primarily ranged as follows: 1) preschool grade as under 6 years, 2) elementary school grade as 7 to 12 years, 3) junior high school grade as 13 to 15 years, and 4) high school grade as 16 to 18 years. Experiences of maltreatment denoted the developmental history of child abuse and neglect prior to being protected by child guidance centers, and those determined from child records in their CHs.

2.4. Statistical Analyses

Data were analyzed using the statistical programming language R, version 3.3.2 (R Core Team, 2016). Descriptive statistics were examined to outline the sample characteristics. The prevalence of neurodevelopmental disorders was calculated with 95% confidence intervals (CI) around population using the Clopper-Pearson method. Gender and age group differences were estimated by chi-square tests.

Logistic regression models were used to examine the factors associated with the diagnoses. Significance level of .05 were used for all statistical tests.

3. Result

3.1. Characteristics of Study Sample

Table 1 shows the descriptive statistics of the sample. Of the 7854 children, the age groups based on educational stages were follows: preschool (17%), elementary school (37%), junior high school (24%), and high school (21%). Almost 60% of children in CHs had experience of maltreatment. In total, 1861 children (24%) had more than one diagnosis of neurodevelopmental disorders.

3.2. Prevalence of Neurodevelopmental Disorders by Gender and Age Groups

The numbers of children with each of the 4 types of neurodevelopmental disorders by gender and age groups are presented in Table 2.

The overall ASD percentage was 6.10%, 95% CI [5.58, 6.65], and observed significant difference between gender, χ^2 (1) = 55.81, $p < .001$, and age groups, χ^2 (3) = 21.39, $p < .001$. The elementary school boys showed the highest ratio of ASD: 9.20%, 95% CI [7.83, 10.72].

The ADHD prevalence among all samples was 4.97%, 95% CI [4.50, 5.47], and also group differences were significant: gender, χ^2 (1) = 87.99, $p < .001$, and age group, χ^2 (3) = 76.37, $p < .001$. The children with the highest ADHD prevalence were the junior high school boys: 9.74%, 95% CI [7.99, 11.74].

In the case of SLD, the total ratio was lower than other types, 0.81%, 95% CI [0.63, 1.04]. Gender difference of SLD was significant, χ^2 (1) = 7.61, $p = .006$, although age group difference was a nonsignificant trend, χ^2 (3) = 7.68, $p = .053$.

The prevalence of ID showed the highest ratio among neurodevelopmental disorders in this study, total 11.93%, 95% CI [11.22, 12.67]. Chi-square analysis found difference within age groups, χ^2 (3) = 75.58, $p < .001$, and without gender, χ^2 (1) = 1.37, $p = .241$. Children with ID were major in the high school stage with both genders.

3.3. Factors Associated with Neurodevelopmental Disorders

The number and ratio of neurodevelopmental disorders by experience of child maltreatment appears in Table 3. Simple logistic regression models were carried out to examine the relationship between variables and the diagnostic status of neurodevelopmental disorders, and to produce the odds ratios (ORs). The explanatory variables were the experience of child maltreatment, gender, and age. To make it easier to compare ORs, elementary school grades that had the largest samples were used as the reference category in age groups. Table 4 shows the results.

The effect of child maltreatment was significant in all types of diagnoses. Three types of disorders had higher prevalence in children with experience of

Table 1. Description of children in the study.

	n	%
Total N	7854	
Gender		
Male	4239	54
Female	3615	46
Age group		
Preschool	1353	17
Elementary school	2926	37
Junior high school	1909	24
High school	1666	21
Experience of maltreatment		
Yes	4501	57
No	3353	43
Status of neurodevelopmental disorders		
No diagnosis	5993	76
1 diagnosis	1705	22
2 diagnoses	147	1.9
3 diagnoses	9	0.1

Table 2. Prevalence of neurodevelopmental disorders in Japanese children's home.

	Total			Male			Female			p-value
	n	%	95% CI	n	%	95% CI	n	%	95 CI	
Autism Spectrum Disorder										
Total	479	6.10	[5.58, 6.65]	338	7.97	[7.18, 8.83]	141	3.90	[3.29, 4.58]	<.001 [a]
Age group										
Preschool	46	3.40	[2.50, 4.51]	32	4.41	[3.04, 6.17]	14	2.23	[1.22, 3.71]	
Elementary school	201	6.87	[5.98, 7.85]	148	9.20	[7.83, 10.72]	53	4.02	[3.03, 5.23]	<.001 [b]
Junior high school	127	6.65	[5.58, 7.86]	89	8.76	[7.09, 10.67]	38	4.26	[3.03, 5.79]	
High school	105	6.30	[5.18, 7.58]	69	7.76	[6.09, 9.72]	36	4.63	[3.27, 6.36]	
Attention Deficit Hyperactivity Disorder										
Total	390	4.97	[4.50, 5.47]	301	7.10	[6.35, 7.92]	89	2.46	[1.98, 3.02]	<.001 [a]
Age group										
Preschool	17	1.26	[0.73, 2.00]	11	1.52	[0.76, 2.70]	6	0.96	[0.35, 2.07]	
Elementary school	187	6.39	[5.53, 7.34]	152	9.45	[8.06, 10.98]	35	2.66	[1.86, 3.68]	<.001 [b]
Junior high school	131	6.86	[5.77, 8.09]	99	9.74	[7.99, 11.74]	32	3.58	[2.46, 5.02]	
High school	55	3.30	[2.50, 4.28]	39	4.39	[3.14, 5.95]	16	2.06	[1.18, 3.32]	

Continued

Specific Learning Disorder										
Total	64	0.81	[0.63, 1.04]	46	1.09	[0.80, 1.44]	18	0.50	[0.30, 0.79]	.006 [a]
Age group										
Preschool	3	0.22	[0.05, 0.65]	3	0.41	[0.09, 1.20]	0	0.00	[0.00, 0.48]	
Elementary school	26	0.89	[0.58, 1.30]	20	1.24	[0.76, 1.91]	6	0.46	[0.17, 0.99]	.053 [b]
Junior high school	17	0.89	[0.52, 1.42]	12	1.18	[0.61, 2.05]	5	0.56	[0.18, 1.30]	
High school	18	1.08	[0.64, 1.70]	11	1.24	[0.62, 2.20]	7	0.90	[0.36, 1.85]	
Intellectual Disability										
Total	937	11.93	[11.22, 12.67]	523	12.34	[11.36, 13.37]	414	11.45	[10.43, 12.54]	.241 [a]
Age group										
Preschool	92	6.80	[5.52, 8.27]	55	7.59	[5.77, 9.76]	37	5.89	[4.18, 8.03]	
Elementary school	317	10.83	[9.73, 12.02]	176	10.94	[9.45, 12.57]	141	10.71	[9.09, 12.50]	<.001 [b]
Junior high school	250	13.10	[11.61, 14.69]	135	13.29	[11.26, 15.53]	115	12.88	[10.75, 15.25]	
High school	278	16.69	[14.93, 18.57]	157	17.66	[15.21, 20.33]	121	15.57	[13.09, 18.32]	

Note. CI = confidence interval. [a]Estimated with chi-square tests by diagnostic status and gender. [b]Estimated with chi-square tests by diagnostic status and age groups.

Table 3. Prevalence of neurodevelopmental disorders by experience of maltreatment.

	Children with maltreatment (n = 4501)		Children without maltreatment (n = 3353)		p-value[a]
	n	% [95% CI]	n	% [95% CI]	
Autism Spectrum Disorder	313	6.95 [6.23, 7.74]	166	4.95 [4.24, 5.74]	<.001
Attention Deficit Hyperactivity Disorder	283	6.29 [5.60, 7.04]	107	3.19 [2.62, 3.84]	<.001
Specific Learning Disorder	55	1.22 [0.92, 1.59]	9	0.27 [0.12, 0.51]	<.001
Intellectual Disability	483	10.73 [9.84, 11.67]	454	13.54 [12.4, 14.74]	<.001

Note. CI = confidence interval. [a]Estimated with chi-square tests by diagnostic status and experience of maltreatment.

Table 4. Logistic regression models of the prevalence of neurodevelopmental disorders.

	ASD		ADHD		SLD		ID	
	Odds ratio [95% CI]	p-value[a]	Odds ratio [95% CI]	p-value[a]	Odds ratio [95% CI]	p-value[a]	Odds ratio [95% CI]	p-value[a]
Experience of maltreatment[b]								
Yes	1.43 [1.18, 1.74]	<.001	2.04 [1.62, 2.55]	<.001	4.60 [2.27, 9.31]	<.001	0.77 [0.67, 0.88]	<.001
Gender[c]								

Continued

Male	2.13 [1.74, 2.61]	<.001	3.03 [2.38, 3.85]	<.001	2.19 [1.27, 3.89]	.005	1.09 [0.95, 1.25]	.228
Age group[d]								
Preschool	0.48 [0.34, 0.66]	<.001	0.19 [0.11, 0.31]	<.001	0.28 [0.07, 0.82]	.022	0.60 [0.47, 0.77]	<.001
Junior high school	0.97 [0.77, 1.22]	.770	1.08 [0.86, 1.36]	.518	1.00 [0.54, 1.85]	.990	1.24 [1.04, 1.48]	.017
High school	0.92 [0.71, 1.16]	.459	0.50 [0.37, 0.68]	<.001	1.22 [0.67, 2.23]	.522	1.65 [1.39, 1.96]	<.001

Note. ASD = Autism spectrum disorder; ADHD = Attention deficit hyperactivity disorder; SLD = Specific learning disorder; ID = Intellectual disability; CI = confidence interval. [a]Estimated with Wald's test. [b]Reference group was "No". [c]Reference group was "Female". [d]Reference group was "Elementary school".

maltreatment. Whereas, only ID had opposite tendencies, OR = 0.77, 95% CI [0.67, 0.88], $p < .001$.

Child gender difference was significant in 3 disorders, but not significant in ID, OR = 1.09, 95% CI [0.95, 1.25], $p = .228$. These indicated that the prevalence of those disorders was two times or higher for boys than girls.

The association between age groups and prevalence were disparate in each types of disorders. In case of ASD and SLD, the ratio of preschool children was significantly lower than elementary school. The ORs of other comparisons in those disorders were not significant. In ADHD, the preschool and high school age groups were less likely to have diagnosis than elementary school. In ID, the prevalence in preschool children were lower, OR = 0.60, 95% CI [0.47, 0.77], $p < .001$, and the others were higher than elementary school: junior high school, OR = 1.27, 95% CI [1.04, 1.48], $p = .017$, and high school, OR = 1.65, 95% CI [1.39, 1.96], $p < .001$.

4. Discussion

4.1. Overall Prevalence of Neurodevelopmental Disorders

The present study shows that 24% of children in CHs had substantial diagnoses of neurodevelopmental disorders. This result indicated that children in Japanese CHs were at a high-risk group of neurodevelopmental disorders and associated behavioral and mental health problems.

4.2. Characteristics of Specific Disorders

ID was the most common neurodevelopmental disorder in CHs. The ID prevalence in all Japanese children under 18 years old was reported as 0.78% (Cabinet Office Japan, 2015), and worldwide prevalence throughout childhood and adolescence was estimated as 1.83% (Maulik, Mascarenhas, Mathers, Dua, & Saxena, 2011). Whereas, children in this study showed the rate at 11.93%, that was approximately 6 to 15 times higher than the general proportion.

It is noteworthy that developmental difference of ID risks was observed, in contrast to nonsignificant gender effect. Our ID prevalence in CHs had significantly increased as the children grew up until high school age. This finding was contrasted with the work by Harris (2006), who pointed out that general prevalence of ID increases from preschool to elementary school age, because of expectations for their school performance. Additionally, our results were also contrastive to the previous studies of residential care which also suggested that children assessed at early age tends to have larger IQ delays (van Ijzendoorn et al., 2008). In this respect, this insight was mainly evaluated from samples of younger children aged between 0 to 12 years, and the data including adolescents as in the present study were limited. There have been several studies of children with a wide age range in else types of out-of-home care. The outcomes from a study of Swedish foster children noted that they had lower cognitive and educational performance in late teens (Vinnerljung & Hjern, 2011). A meta-analyses that largely used Western country's data revealed the IQ difference between adopted and unadopted children was significantly larger in adulthood (van Ijzendoorn, Juffer, & Poelhuis, 2005). Considering these findings, our results of the developmental trajectory in ID appears to correspond to those of foster care and adoption in Western countries. A possible explanation of this similarity in different care types is that they had similar trends of child placement because both CHs in Japan, and foster care and adoption in Western countries were the most common in each nation.

The next highest prevalence in our samples was ASD. Recent studies reported that the general ASD ratio in Japan was 1.83% (Kawamura, Takahashi, & Ishii, 2008), and in U.S. was 2.24% (Zablotsky, Black, Maenner, Schieve, & Blumberg, 2015). We found the ASD prevalence in CHs was 6.10%, which was higher than both of those. Related to ASD diagnosis, it is recognized that some children who experienced severe institutional deprivation in early life show autistic features, called "Quasi-Autism (Q-A)" (Rutter et al., 1999). There is a possibility that our ASD samples had included a few Q-A children. In this respect, Rutter et al. also pointed out that Q-A features were major in 4 year olds and tended to decrease in 6 year olds. Contrary to this pattern, the analysis between age groups found that our ASD prevalence in preschool aged children were lower than the older children. This distinction in developmental patterns suggests that samples in the current study could exclude Q-A children from ASD diagnosis, and children in Japanese CHs have a low probability to show Q-A features compared to institutions in other countries.

The ADHD prevalence was 4.97% in CHs. This ratio was quite compatible with the 5% that was estimated as the worldwide prevalence (American Psychiatric Association, 2013). Contrary to the predictions, this finding implies that the ADHD risk was similar in both the CHs and general children, and the ADHD risk ranged below the ASD risk of children in Japanese CHs. Among the age groups, ADHD was major in elementary and junior high school, and minor in preschool and high school. The low rate in high school support the previous re-

search that found ADHD decreases as children age (Langberg et al., 2008). However, the result of preschool was contrary to a Japanese population study that suggested that the general rate of preschool ADHD was 5.8% (Nomura et al., 2014). A possible contributor to this could be the complex relationships between ADHD and child maltreatment. It has been well known in Japanese professions that the symptoms of attachment disruptions caused by child abuse have commonality with ADHD (Mizuno et al., 2015). Consequently, there is a possibility that a definitive diagnosis in preschool age for CH children who persist in the symptoms associated with ADHD or attachment disruptions might be postponed until school age, in order to avoid the risk of misdiagnosis.

The SLD ratio in this study ranged comparatively low (0.81%). The prevalence of dyslexia that is regarded as the most common manifestation in SLD suspected 3.8% in second grade of Japanese elementary school (Ogino et al., 2011). The groups showing higher ratios in the samples were elementary and high school boys (1.24%), although this percentage was less than half of above the general ratio or previous scores of children in welfare systems (DosReis, Zito, Safer, & Soeken, 2001; Lightfoot, Hill, & LaLiberte, 2011). These signify the SLD risk of children in Japanese CHs was substantially lower than other disorders.

4.3. Association with Child Maltreatment

We focused on the experience of child maltreatment prior to the placement as the factor related to diagnoses of neurodevelopmental disorders. The results among 3 disorders of ASD, ADHD, and SLD were consistent with the previous studies that found child maltreatment significantly predicted the risk of these disorders. Surprisingly, we found that the prevalence of ID with maltreated children was less than without maltreatment, showing an opposite trend to other diagnoses. It has been claimed that delayed intellectual development would be caused by child maltreatment as well as increased risk of maltreatment, similar with other disorders (Sullivan & Knutson, 1998). This gap might be understood by the child welfare system in Japan. There are different forms of residential facilities that provide specialized care and treatment for disabled children, besides the CH that provides usual rearing. Children with comparatively severe disorders with the need of out-of-home care were usually placed to these special facilities which are also factored into the ratio of maltreated children. Because maltreated children with more severe intellectual delay tend to be placed into other types of care, there is a possibility that maltreated ID numbers in this study were decreased. This hypothesis should be examined by further work including data from specialized facilities.

4.4. Limitations

This study revealed the current state of CHs in Japan that differed from previous studies in Western countries, however there were several limitations. The method to identify diagnoses relied on child records in the facilities due to the col-

lection of data from large samples. Further research is required to include the diagnostic information which was ascertained using the standardized assessment tools, and the evaluation of severity levels of each symptom and intellectual development. Moreover, this study did not obtain the detailed developmental history including types of maltreatment, duration in care, placement stabilities, and so on. Another limitation is that our study used a cross-sectional design, thus the longitudinal or cohort study to analyze the developmental change should be conducted.

5. Conclusion

In conclusion, our results demonstrated high risks of neurodevelopmental disorders in Japanese CHs. Especially, the high prevalence of ID and ASD was estimated as unique from previous findings. These results highlight the necessity for children in CHs to obtain a continuous assessment of neurodevelopmental features and tailored care for individual traits as well as the consideration for outcomes of child maltreatment. Currently, Japanese child care system has been promoting the advancement of foster care and the reduction of care size in each CH. When discussing to improve the child care form in Japan, it is necessary to create an environment which is appropriate for children with neurodevelopmental features.

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