

## **THE STUDY OF SUSPECTED DEVELOPMENTAL DISORDERS FOR ALL OF THE SCHOOLS FOR THE DEAF IN JAPAN**

Aya Oshika<sup>\*</sup>, Anna Watanabe<sup>\*\*</sup>, Chikashi Kyan<sup>\*\*</sup>, Toyohiko Hamada<sup>\*\*\*</sup>

<sup>\*</sup>Japan Society for the Promotion of Science, Tokyo, Japan

<sup>\*\*</sup>Graduate School of Tokyo Gakugei University, Tokyo, Japan

<sup>\*\*\*</sup>Tokyo Gakugei University, Tokyo, Japan

### **ABSTRACT**

#### **INTRODUCION**

According to government research (2003), 6.3% of normal elementary school students were having difficulties apparently related to developmental disabilities such as LD, ADHD, and HFA in Japan. Deaf children have secondary disabilities because of their hearing loss. However we wonder if these secondary disabilities may include developmental disabilities.

#### **PURPOSE·METHOD**

The purpose of this study is to investigate the number of hearing impaired children with developmental disorders for all of the kindergarten (5 years old class) and elementary schools for the deaf in Japan, based on the research on developmental disorders by Ministry of Education. Also, the results were compared with the first investigation for all of the Schools for the Deaf (oshika et al.,2010).

#### **RESULTS**

In kindergarten, 75 schools (91 classes, 336 students) responded and 22.4% of them showed developmental disorders-like difficulty. In elementary school, among 1551 students' results, 1210 students' (75.1%) results were valid. 32.9% (1.7% higher than previous survey) of students have severe difficulties in "academic achievement", 10.1% (0.9% higher) with "attention deficit" or "hyperactivity-impulsivity", and 6.8% (2.7% higher) with "interpersonal relations and restricted patterns of interests". That is, 37.4% (3.6% higher) of students have severe academic or behavior difficulties. This figure is higher than teacher's impression assessment(27.7%), suggesting these difficulties are derived from hearing impairment.

#### **CONCLUSIONS**

The results were evaluated by the same criteria as hearing student. However, the influence of the secondary difficulty of the hearing impairment must also be considered.

It is necessary to make evaluation criteria for hearing impaired children.

## INTRODUCTION

In Japan, more attention has been paid to LD without mental disorder, ADHD and autistic spectrum (hereafter called developmental disorders). The 1st (2003) and 2nd (2012) national survey of Ministry of Education, Culture, Sports, Science and Technology for hearing children showed 6.3% and 7.7% of the students had severe learning or behavioral difficulties, respectively. As the understand of developmental disorders is spread, secondary difficulty which is thought to be derived from hearing impairment in education for hearing impairment may actually include some developmental disorders. When primary disability such as hearing impairment already exists, these developmental disorders have higher risk of being overlooked. In Japan, Oshika et al. (2010) and Hamada et al. (2010), carried out 1st survey of developmental disorders for all of the schools for the deaf. Using the same checklist by Ministry of Education, Culture, Sports, Science and Technology (2003, 2012) and evaluated in the same criteria as hearing children, 33.8% of them possibly had developmental disorders and in need of special educational support. This ratio is not negligible. Also when the teachers were asked whether they feel their students have developmental disorders in the impression evaluation for the classroom teachers, 17.6% of them answered, "I think so."

In 2012, the same survey was performed again after 5 years from the previous survey for the school for the deaf. Purpose of this study is to report the result and compare it with the 1st survey and evaluate the change.

## METHOD

We asked and posted the questionnaire. There were 2 types; kindergarten questionnaire for 5 years old single disability kindergarten students and elementary school questionnaire for single disability elementary school students.

## RESULTS

They questionnaires were sent to all of the schools for the deaf with kindergarten or elementary school department (105 schools) and 93 schools (89.6%) responded.

### Questionnaire for the kindergarten (5 years old class)

75 schools with 91 classes responded. The total number of students was 336.

Even though the class is categorized as single disability class, the actual classes including students with multiple disabilities were 29 (31.9%) and the number of students was 37 (11.0%). When impression evaluation and the characteristic of developmental disorders was carried out excluding those above 299 students, 50 classes (54.9%) with 67 students (22.4% 6.4% higher than previous survey) had special educational needs with possible developmental disorders.

Often observed behavior and difficulty by these students (multiple answers) are shown in Fig.1. Clumsy such as difficulty in fine work or awkward body movement scored the highest (34 students, 11.4%) as the features of difficulty. Behavioral difficulty was cited many times. Difficulty in “remembering new words” which indicates remembering new words as compared to the hearing level came in 4th (31 students, 10.4%).

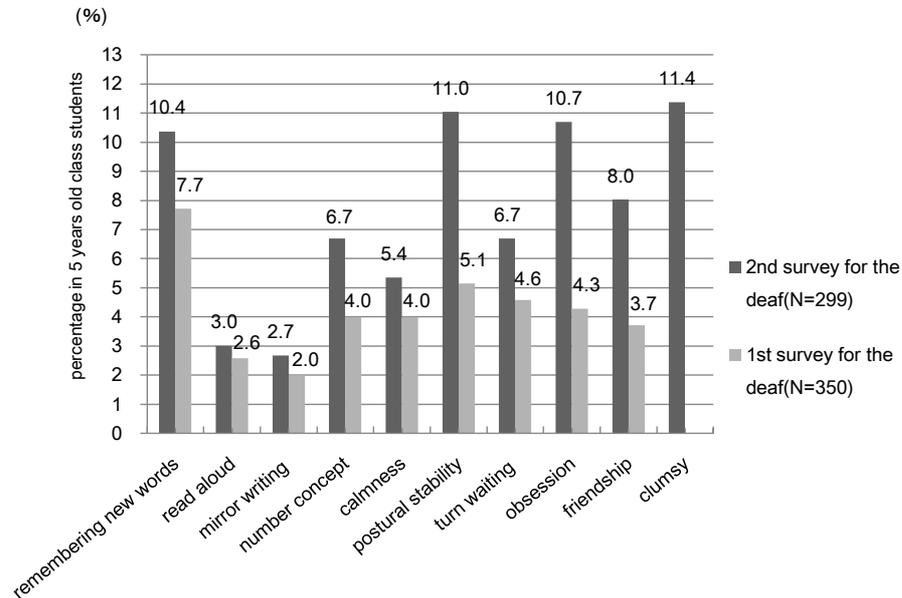


Fig.1 observed difficulty by 5 years old class students

## Questionnaire for elementary school

The questions from survey of Ministry of Education, Culture, Sports, Science and Technology used in this study have mainly 2 parts, learning and behavior. Behavior is subdivided into “attention deficit”, “hyperactivity-impulsivity” and “interpersonal relations and restricted patterns of interests”. Learning has 6 domains; “listening”, “speaking”, “reading”, “writing”, “calculating” and “reasoning”. The questions among “attention deficit”, “hyperactivity-impulsivity” domain includes questions such as “One does not pay enough attention to the details or makes careless mistakes at school study.” The questions among “interpersonal relations and restricted patterns of interests” include questions such as “One has enough knowledge of specific field but it is from just memorizing and not understanding it properly.

79 schools responded among 100 schools for the deaf with elementary school department. The number of all respondents was 1551 students (96.2% of all of the school for the deaf elementary school department single disability class 1612 students). Excluding missing data and obvious multiple disabilities students data (214 students), the valid response was 1210 students (75.1%). The result is shown in Fig.2.

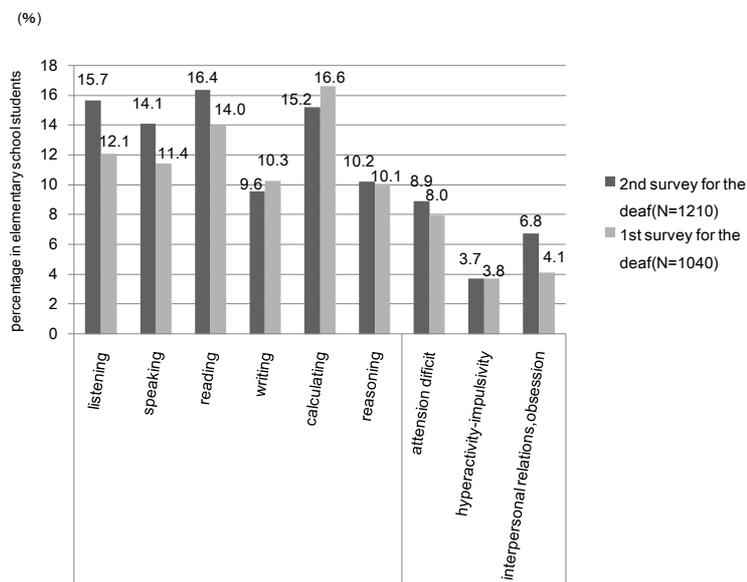


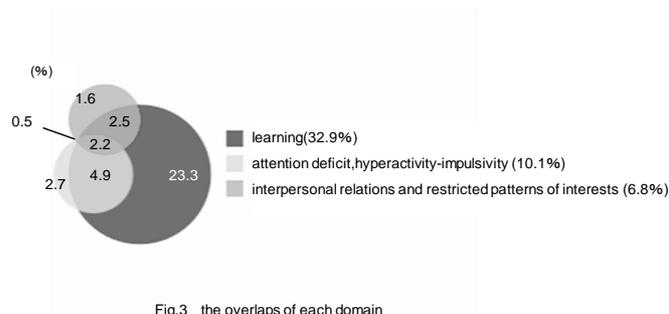
Fig.2 observed difficulty by elementary school students

The students showing severe difficulty in learning were 398 (32.9%) in total of 1210. Many responses were in “reading”, “listening”, “calculating” and “speaking”. 31.2% of the students showed severe difficulty in learning in the 1st survey of developmental disorders for all of the schools for the deaf so there was 1.7% increase. Compared with the 2nd national survey (Ministry of Education, Culture, Sports, Science and Technology, 2012) that showed 5.7% of the elementary school students have severe difficulty, this study showed 5.5 times higher rate.

The students showing severe difficulty such as “attention deficit”, “hyperactivity-impulsivity” in behavior were 122 (10.1%) in total of 1210. 9.2% of the students showed severe difficulty such as “attention deficit”, “hyperactivity-impulsivity” in behavior in the 1st survey of developmental disorders for all of the schools for the deaf so there was 0.9% increase. The number of students with “attention deficit” and “hyperactivity-impulsivity” is 108 (8.9%) and 45 (3.7%), respectively. The percentage of hearing children with difficulty such as “attention deficit”, “hyperactivity-impulsivity” was 3.5% (Ministry of Education, Culture, Sports, Science and Technology, 2012) so it is 2.9 times higher for hearing impaired children. However, the gap was small compared with other domains.

The students showing severe difficulty in “interpersonal relations and restricted patterns of interests” were 82 (6.8%) It was 4.1% in the 1st survey of developmental disorders for all of the schools for the deaf so there was a relative large increase compared to the other domains. 1.3% of the hearing children showed such condition (Ministry of Education, Culture, Sports, Science and Technology, 2012) so it was 5.2 times higher for the hearing impaired children.

To sum up, the number of students with some kind of difficulty in “learning” or “behavior” was 453 (37.4%). This is 3.6% higher than the 1st survey of developmental disorders for all of the schools for the deaf that is 33.8%. The figure is 7.7% for hearing children (Ministry of Education, Culture, Sports, Science and Technology, 2012) so it was 4.9 times higher for the hearing impaired children. The overlaps of each domain are shown in Fig.3.



The comparison between survey of developmental disorders for all of the schools for the deaf Oshika et al. (2007, 2012) and national survey for hearing children (Ministry of Education, Culture, Sports, Science and Technology, 2002, 2012) is shown in Table 1.

Table2 The comparison between survey for the deaf and hearing children

(%)	Hearing		Deaf(E.S.)	
	1st(E.S.-J.H.S.)(2002)	2nd(E.S.)(2012)	1st(2007)	2nd(2012)
learning	4.5	5.7	31.2	32.9
attention deficit	1.1	2.7 (E.S.-J.H.S.)	8.0	8.9
hyperactivity-impulsivity	2.5	3.5	9.2	10.1
interpersonal relations and obsession	2.3	1.4 (E.S.-J.H.S.)	3.7	3.7
interpersonal relations and obsession	0.8	1.3	4.1	6.8
Some kind of difficulty	6.3	7.7	33.8	37.4
Impression by the teacher	—	—	17.6	27.7

(the percentage of the students showing severe difficulty)

After the checklist, the teachers were asked to evaluate whether they get the impression that the student has developmental disorders. For 335 students 27.7% out of 1210 students, teachers answered, "I think so." In the 1st survey of developmental disorders for all of the schools for the deaf, 17.6% of the students gained such impression so there was 10.1 % increase. Among 335 students, the number of students who had more difficulty than criteria in at least one of the domains and also matched impression evaluation was 286 (85.4%). On the other hand, the number of students who were not thought to have developmental disorders from impression evaluation by teachers and the result of checklist corresponded was 470 (55.7% out of 884). Therefore, although approximately half of the students showed more difficulty than criteria, the teachers did not get the impression that they have developmental disorders.

The number of students who seeks specialist for need derived from developmental disorders is 46 (13.7% out of 335 with impression). In the 1st survey of developmental disorders for all of the schools for the deaf, 15.3% of them answered they had cooperation hence the cooperation with the specialists is not taken sufficiently.

## DISCUSSION

In the survey for the kindergarten (5 years old class) 22.4% of the students excluding obvious multiple disabilities students had educational needs with possible developmental disorders. The teachers had the impression that students had difficulty in behavior such as clumsy or postural stability. In the kindergarten, the problems in behavior seem more noticeable than the problems in learning.

The percentage of students in elementary department who had severe difficulty in at least one of the domains by checklist (Ministry of Education, Culture, Sports, Science and Technology, 2003, 2012) was 37.4%. Compared with the 1st survey of developmental disorders for all of the schools for the deaf which was conducted 5 years ago, there was an increase in every domain however there was no major change. Therefore, it is suggested that when the hearing impaired children is evaluated using the same checklist for hearing children, the number of students who have special educational needs with possible developmental disorders is 30 to 40% that is higher than hearing children. The reason for such high value for hearing impaired children is that because it is evaluated in the same criteria as hearing children, it is possible that secondary difficulty derived from hearing impairment is also included. To exclude the

secondary difficulty, Oshika et al. (2010) classified the results of the 1st survey of developmental disorders for all of the schools for the deaf based on the characteristics of difficulty to extract the standard group without severe difficulty and created the criteria for the hearing impaired children according to their results. Same evaluation will be given to the 2nd survey of developmental disorders for all of the schools for the deaf. From advancing in the genetic diagnosis and medical knowledge of hearing impairment due to virus infection, it is reported that hearing impairment has high risk of complication with other symptoms such as developmental delay (Usami, 2012) hence, analysis from these point of view is expected in the future.

The number of students who may possibly have developmental disorders by teachers' impression is increasing in both kindergarten and elementary department. One of the reasons for this may be the awareness for special educational needs for possible developmental disorders is growing even in the education for the hearing impairment. Nonetheless, substantial support is not enough for many cases. In the future, specialists for the education for the hearing impairment and specialist for the developmental disorders need to cooperate for the better support.

There were a certain number of cases that teachers' impression did not match the checklist or vice versa. Children with developmental disorders are often clumsy (A.Kurtz, 2007), and this is key feature of it. However, this feature was not in the checklist by (Ministry of Education, Culture, Sports, Science and Technology, 2003, 2012) that was referred as draft in this study. In the further study, new question items may need to be considered.

The result of this study is thought to include not only developmental disorders but also the secondary difficulty by hearing impairment. Even though, it is difficult to distinguish it just from the checklist, the number of students who have certain difficulty in the general education for the hearing impairment is probably not low. Including the viewpoint of developmental disorders would be useful to consider new support to the difficulty. At the same time, when supports are sought, the primary disability as hard of hearing must be considered and guaranteeing education for the hearing impairment is necessary.