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## Case Report

### Report on Two Cases of Adequate Medical Support System Using the Japanese Version of Kid-KINDL<sup>R</sup> Questionnaire for Children with ADHD

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**Abstract :** We are investigating whether medical support improves not only the core symptoms of children with attention deficit / hyperactivity disorder (ADHD), but also their quality of life (QOL) using the Japanese version of the Kid-KINDL<sup>R</sup> (for ages 7-13 years) questionnaire (Kid-KINDL<sup>R</sup>). Herein, we report two cases of adequate medical support using Kid-KINDL<sup>R</sup> for children with ADHD. Case 1 is a 9-year-old boy. The Kid-KINDL<sup>R</sup> questionnaire revealed that this patient had conflict with his father ; however, the father was unaware of such situation and had no understanding of the conflict. In addition to medical treatment, we advised his father to ascertain a good relationship with his son in order to better understand him. Case 2 is an 8-year-old boy who showed a decreasing self-esteem score after administration of medicine, despite improvements in his ADHD symptoms. We considered that the medicine had improved both his self-discernment and his relationships with others, indicating that the medical support was more effective in case 2 than in case 1. The Kid-KINDL<sup>R</sup> Questionnaire, and in particular the self-esteem scores, enabled us to understand the QOL changes in the reported cases. We speculated that children with ADHD have a greater obstacle of self-discernment than children showing normal development. However, such children may learn to recognize the concept of self-esteem, and we conclude that it is necessary to support these patients with specialized care to improve their ability to compare themselves with others.

**Key words :** ADHD (Attention deficit / hyperactivity disorder) QOL (quality of life), Kid-KINDL<sup>R</sup> Questionnaire, Japanese version of Kid-KINDL<sup>R</sup> (age 7 ~ 13) questionnaire, self-esteem

## Introduction

Children with a neurodevelopmental disorder experience difficulty in various situations of daily life, and such symptoms affect both normal social functioning and overall quality of life (QOL)<sup>1, 2)</sup>. Medical support system (medication, psychotherapy, counselling etc.) should aim to improve not only the specific symptoms, but also patient QOL. Thus, we sought to determine whether medical support achieves both these aims.

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Attention deficit / hyperactivity disorder (ADHD) affects the largest population of any neurodevelopmental disorder<sup>3)</sup>. In this paper, we describe two cases of ADHD in boys, wherein we assessed the change of QOL scores in the children and their parents before and after medical support administration.

## Materials and methods

QOL was assessed using the KINDL questionnaire for the assessment of health-related QOL in childhood and adolescence<sup>4)</sup>. This is a short, validated tool comprising 24 items across 6 domains (physical wellbeing, emotional wellbeing, self-esteem, family, friends, and school). The KINDL<sup>R</sup> is designed for children and adolescents between 3 and 17 years of age. Three different versions are available for different age groups and developmental stages. Additionally, each version of the questionnaire can be completed both by children or adolescents, and their parents. Scores are then transformed such that the range of possible values for the sub-scores and the total score are in the range from 0 (most negative state) to 100 (most positive state) (Fig. 1, Table 1).

Shibata *et al*<sup>5)</sup> examined the reliability and validity of the Kid-KINDL<sup>R</sup> questionnaire (Questionnaire for Measuring Health-Related Quality of Life in Children, Ravens- Sieberer *et al* 2000<sup>6)</sup>), which they translated into the Japanese Version of Kid-KINDL<sup>R</sup> (for ages 7-13)

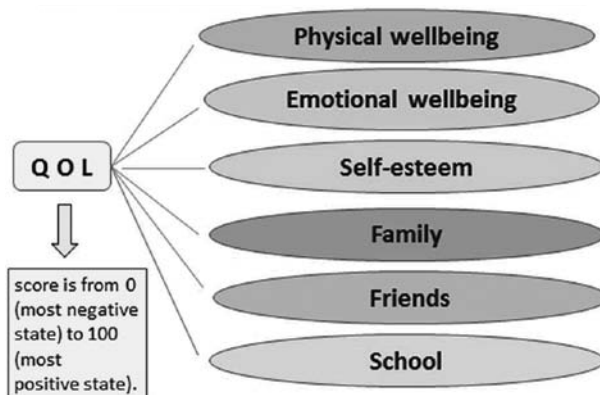


Fig. 1. KINDL questionnaire ; constructed 6 domains

Table 1. Sample contents of questionnaire

Domain of
physical wellbeing ; I felt ill
emotional wellbeing ; I had fun and laughed a lot
self-esteem ; I was proud of myself
family ; I got along well with my parents
friends ; I played with friends
school ; doing my schoolwork was easy

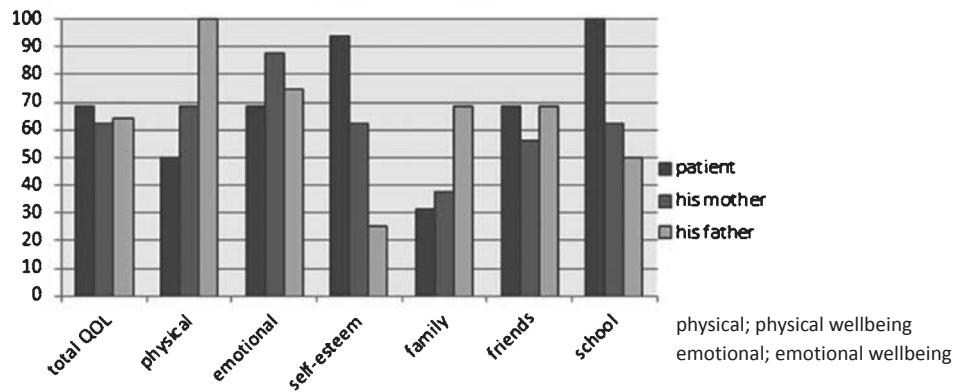


Fig. 2. Self-reported QOL scores of Case 1 and his mother and father at the first clinic visit

Questionnaire. They confirmed that this instrument is a reliable, valid, and practical instrument for assessing QOL in Japanese children. We collaborated on this and in doing so, have investigated more than 10,000 children.

For private information protection, we added to the correct details and informed consent was obtained from the families. The ethics committee of the Graduate School of Education, Psychology and Human Studies of Aoyama Gakuin University also approved the study protocols.

## Case report

### Case 1

This case is a 9-year-old boy in the 3<sup>rd</sup> grade of elementary school. He was diagnosed with ADHD, and prescribed one type of curative medicine for ADHD, namely osmotic release oral system-methylphenidate (OROS-MPH) administered at 18 mg per day, by his primary pediatrician. However, as he experienced side effects with this medicine including insomnia and anorexia, his mother brought him to our clinic with a patient referral document. His father was also suspected of having ADHD, and his mother found it difficult to take care of both her son and husband.

As shown in Fig. 2, the boy estimated that although his self-esteem and school domains were high, his physical wellbeing and emotional wellbeing domains were comparatively low, with his family domain the lowest. His mother's evaluation for the domain of self-esteem and school was lower than that of her child, with her estimation of the family domain low as for her son. While his father estimated the domains of self-esteem and school to his mother; the parents respective evaluations of physical wellbeing and family domains were completely different.

From these results, case 1 was considered to be a typical child with ADHD that shows high self-esteem. He was in conflict with his father; however, his father was not aware of that situation. Thus, there were defined gaps between his parents understanding of him. Specifically, his mother understood that he is worried about the relationship with his father.

We confirmed the results by oral consultation with the boy and his parents, with the following results. He said that his father reproached him almost every day, and he had fear. After these

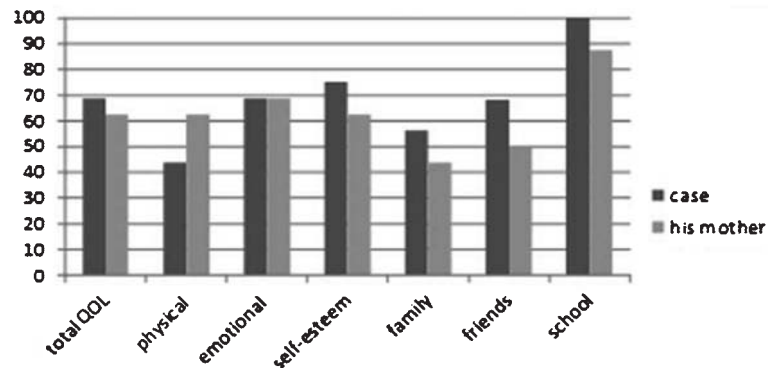


Fig. 3. Self-reported QOL scores of Case 1 and his mother 3 months after the start of treatment

reproaches from his father, he often used his poor health as an excuse, especially in school when his impulsive acts were pointed out. Despite this, his school record was good and he answered that school life was pleasant. His mother reported that since some impulsive acts were pointed out in school, the domain of school was low. She understood about many problems, such as his fear regarding his father, and friends avoiding him against his will in school. His father reported being anxious about his son's future, and wondering how he should cope with the issue.

Based on this study, we made a medical support systems plan and advised that the boy promise to reach two or three easy targets each day at home and in school, do his best to achieve them, and give himself a prize when the points accumulate.

The use of a small quantity of atomoxetine (another type of curative medicine for ADHD) and risperidone was explained to the mother. We advised the father not to be so meticulous and to praise his son for his achievements during the course of our medical support plan.

As shown in Fig. 3, both he and his mother estimated the domain of family to be high. He estimated that self-esteem had slightly decreased, but the school domain remained high.

In this case, we thought that using the Japanese version of Kid-KINDL<sup>R</sup> questionnaire was very effective in evaluating the patient's medical support.

### Case 2

This case is an 8-year-old boy in the 2<sup>nd</sup> grade of elementary school. His chief clinical complaint is hyperactivity, in that he takes immediate action when he has a concern or an interest. Although clearly his favorite subject, he often forgets to write a "formula" with arithmetic. He may also disturb his classmates, sometimes developing into a quarrel. He is talkative, but tends to shift from one topic to another. Although consideration was needed for his situation at school, he remained unaware of this attention. The boy's hyperactivity and talkative nature were also evident in the home, prompting a diagnosis of ADHD. Thus, we administered OROS-MPH at 18 mg per day after informed consent.

Four weeks after the initiation of medication, the boy was able to respond better to our questions. He could now speak logically about the situation in school, and grew more friendly

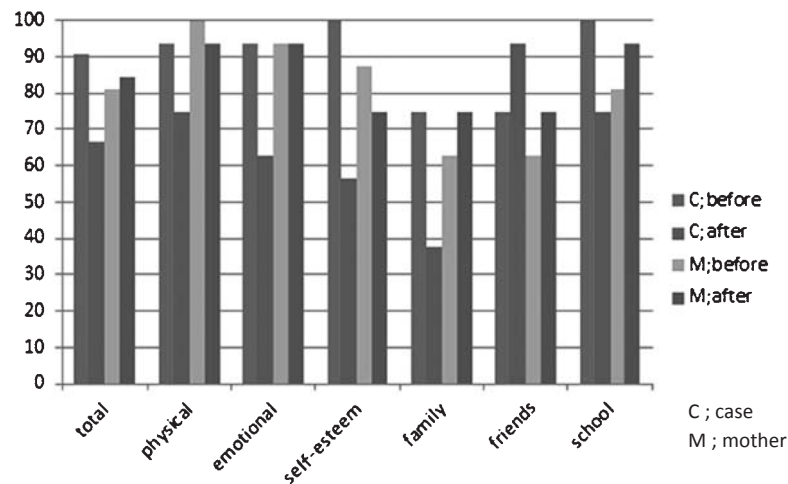


Fig. 4. Changes in scores for total QOL and for each of the six domains before and 3 months after the MPH medication for Case 2 and his mother

with the classmate with whom his former relationship had been the worst, even saying “I was wrong.” This case could express self-discernment before and after the administration of OROS-MPH.

As shown in Fig. 4, his evaluation of QOL decreased after 3 months of medication though his pre-medication evaluations were similar to those of his mother by Kid-KINDL<sup>R</sup>. Falls in the domains of self-esteem and family were considered to be the main factors in this change.

## Discussion

We have been using the Japanese Version of Kid-KINDL<sup>R</sup> Questionnaire for estimating the effects of medical supports for children with psychiatric problems<sup>7-9)</sup>. In this report, we described two ADHD cases without secondary complications with respect to changes in QOL score made by the patients and their parents before and after medical supports.

Case 2 showed that although ADHD symptoms improved clearly after MPH medication, the QOL score decreased. We speculated that changes in his language and behavior in the examination room was a result of him starting to recognize and understand the existence of others<sup>9)</sup>. Case 1 maintained a good QOL score before and after medication. Rothenberger, *et al*<sup>10)</sup> reported that patients with ADHD showed improvements in QOL and satisfaction with medication. However, unlike the present two cases, it is likely that most of their cases had secondary complications. And in the presence of secondary complications, self-esteem reduces rapidly<sup>8)</sup>. Since children with a developmental disorder have the obstacle of self-discernment, self-esteem does not become low only by the core symptom in diagnostic criteria. However, self-esteem will reduce rapidly with the appearance of secondary complications.

On the other hand, unlike children of normal development, children with a developmental disorder may learn to experience and thus gain the concept of self-esteem. It therefore seems critical to support these children, especially when they are reaching adolescence (around 10 years

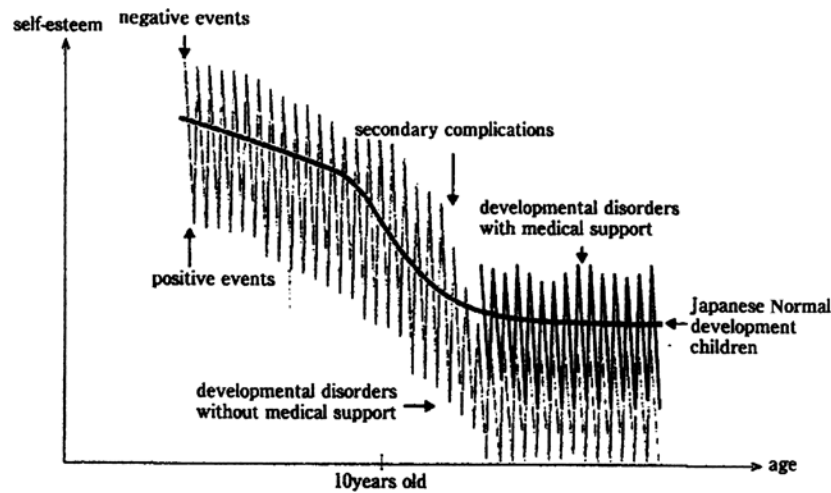


Fig. 5. Change of self-esteem for children for developmental disorders and Japanese Normal development children

of age), the point when children with developmental disorders start to compare themselves with others.

Early recognition and prevention of secondary complications is thought to support the progress of children with a developmental disorder by evaluation using the schoolchild version and a junior high school student version of QOL measures.

Fig. 5 shows changes in self-esteem for Japanese children with and without a developmental disorder<sup>8)</sup>. If children with a developmental disorder have negative events, their self-esteem drops rapidly, while if they experience positive events, their self-esteem rapidly rises. Thus, the presence of secondary complications without medical support reduces their self-esteem and keeps it low; however, subsequent medical supports can improve self-esteem to an adequate level such that it remains stable.

We surmised that a child's self-discernment and relationship with others could become very clear by taking medicine. Herein, we showed two ADHD cases without secondary complications, and verified that the Japanese Version of Kid-KINDL<sup>R</sup> Questionnaire could be used to evaluate self-esteem and reveal that medical support worked more effectively to raise self-esteem in one case compared to the other.

#### Conflict of interest

The authors have declared no conflict of interest.

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