Self-cognition in children diagnosed with attention deficit-hyperactivity disorder:

Level of awareness in assessment of self as seen by others and the illusion bias

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The study described in this paper has two objectives. The first objective of this paper is to clarify the extent to which children with Attention Deficit-Hyperactivity Disorder (AD/HD) direct their attention to assessment of self as seen by others, through a comparison with typically developed children. The second objective of this paper is to determine the degree of attention children give to their mothers’ assessment of them (for both typically developed children and children with AD/HD) and to examine the relationship between this degree of attention and the gap between children’s perceptions of how their mothers see them and the assessments of them by their mothers. The participants were 44 children with AD/HD and their mothers and 169 typically developed children and their mothers. All the children were enrolled in elementary school in the fourth to sixth grades. The results showed that there was no significant effect present for either a) attention to assessment of self as seen by others, or b) attention to assessment of self as seen by others for AD/HD traits. The results also show negative significant correlation only in the domain of behavioral conduct in the AD/HD group. On the other hand, no significant correlation was found in any of the domains of the typically-developed group. In the AD/HD group, the higher the attention to assessment of self as seen by others in the domain of behavioral conduct, the less tendency toward the illusion bias.

Key words: Attention Deficit-Hyperactivity Disorder, self-cognition, children

Introduction

The view has been expressed that one trait of children with attention deficit-hyperactivity disorder (AD/DH) is idiosyncrasy in the process of self-control based on objectivization of the self (Barkley; 1997). Consequently, encouraging such children to look back on their actions and regulate their behavior and to modify their self-assessment with a positive illusion bias (Hoza et al.; 2004) is an important point in directing attention toward assessment of self as seen by others.

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Findings rising out of the discussions around self-cognition in children with AD/HD are very important for self-control and self-modification of their behaviors.

In this paper, we examine self-cognition in children with AD/HD in terms of self-esteem in three ways: how the children perceive themselves, how the children perceive how others feel about them and the appraisal of others (their mothers) regarding their behavior. The purpose of the present study is to clarify the extent to which AD/HD children direct their attention to assessment of self as seen by others, through a comparison with typically developed children.

Generally speaking, the attention to self-cognition base on how others perceive them results in controlling children's behavior. In children with AD/HD, when they asked themselves, "If I do this, how will people judge me?" they review their conduct through the perspective of others, and they behave better to earn the esteem of others. However, we find that children with AD/HD often get up from their seats, when remaining seated is expected in class and they routinely talk excessively even when other students regard them with hostility. Do they pay attention to the appraisals of others? It may be that these children pay little attention to these appraisals or the resulting hostility.

The first objective of this paper is to compare 10 to 12-year-old children with AD/HD to those without AD/HD. The focus of the study is to examine the degree of attention to assessment of self, as seen by their mothers, that the children demonstrate in the areas of Scholastic Competence, Social Acceptance, Athletic Competence, and Behavioral Conduct, as well as attention to assessment of self as seen by others, for AD/HD traits. The subjects were children in the late years of elementary school (4th-6th grade), a time when children begin to assess themselves from the perspective of others (Kajita; 1988).

According to Nakayama, Tanaka & Yamazaki (in printing), in self-appraisal, children with AD/HD overestimated social acceptance relative to their mothers’ appraisals more than in the control group. When projecting their mothers’ appraisals, children with AD/HD overestimated social acceptance and athletic ability relative to their mothers’ appraisals more than the control group. Based on the results, the positive illusion bias is effective for investigation into self-cognition of children with AD/HD. The less they pay attention to the assessments of them by others, the more they have a positive illusion bias.

The second objective of this paper is to examine the relationship between the degree of salience children give to their mother’s assessment of them (for both typically developed children and children with AD/HD) and the gap between children’s perceptions of how their mothers see them and the actual assessments mothers make of their children.
Method

1. Participants

The participants were 44 children with AD/HD and their mothers (AD/HD group) who were enrolled at public elementary schools in the fourth to sixth grades (selected because both the economic level and lifestyle of the parents were at the average level in Japan) in a regional city in Japan. There were 21 children in the fourth grade, 14 children in the fifth grade and nine children in the sixth grade. The study also included 169 typically developed children and their mothers (Typical group) enrolled in elementary school in the fourth to sixth grades. There were 59 children in the fourth grade, 60 in the fifth and 50 in the sixth.

2. Measures

The following are four measures of self-assessment:

(1) The attention to assessment of self as seen by others was examined in four fields. Regarding Scholastic Competence, Social Acceptance, Athletic Competence, and Behavioral Conduct Children were asked, “How much do you care what your mother thinks about you?” The study included the following example:

① Scholastic Competence: “How much do you care what your mother thinks about your school grades?”

② Social Acceptance: “How much do you care what your mother thinks about your relationships with your friend?”

③ Athletic Competence: “How much do you care what your mother thinks about how well you exercise?”

④ Behavioral Conduct: “How much do you care what your mother thinks about your behavior?”

A four-category method was used for responses, from “I care very much” to “I don’t care at all.” The AD/HD group children were asked the reasons for their assessments.

(2) The attention to assessment of self as seen by others in AD/HD traits was examined. Children were asked, “How much do you care what other people think about you?” for eight behaviors in AD/HD traits (four behaviors each for the two traits: inattention and hyperactivity/impulsiveness) based on AD/HD behaviors as defined in DSM-IV-TR. The study included the following example: for lack of attention, “how much do you care what others think about your behavior when only you forget homework in class?” and for hyperactivity/impulsiveness, “how much do you care what others think about you when only you get up from your seat in class?” A four-category method was used for responses, from “I
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care very much” to “I don’t care at all.” The AD/HD group children were asked the reasons for their assessments.

(3) The assessment of self as seen by others was examined. Children were asked, “how much do you think about how your mother assesses you?” for a total of 15 items in the four fields of Scholastic Competence, Social Acceptance, Athletic Competence, and Behavioral Conduct. The children were first asked to decide which kind of child is most like him or her, and then were asked whether this is only sort of true or really true for him or her. Items were scored either 4, 3, 2, or 1, where 4 represented the most adequate self-judgment and 1 represented the least adequate self-judgment.

(4) The evaluation by mother was examined. Mothers were asked, “to what degree does this apply to your child?” This question was posed for a total of 15 items in the four fields of Scholastic Competence, Social Acceptance, Athletic Competence, and Behavioral Conduct. Items were scored either 4, 3, 2, or 1, where 4 represented the most adequate judgment and 1 represented the least adequate judgment.

All items in (1), (3) and (4) were based on Harter’s scale (1985) and the Japanese version of the self-cognition scale (JSSC1; Tanaka et al., 2005), which is composed of five domains: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, and Behavioral Conduct. In all, the Japanese version has 30 items, and back translation was conducted for all items in (1), (3), and (4). Each subscale was counter-balanced.

3. Procedure

AD/HD group: individual interviews of each child and each mother were conducted.

Typical group: The surveys were conducted with all students together in their classrooms. One of the authors or a study assistant (graduate student) who understood the aims of the study was in each classroom and explained the study’s purposes, how to complete the questionnaire, and other matters, and then distributed the questionnaires and asked the students to fill them in. If students had questions while they were filling in the questionnaires, responses were given as needed to the extent possible without biasing the responses. Mothers completed the questionnaire brought home by their children.

We obtained official approval for the study from the school principal, homeroom teachers, and all other teachers in each school. We informed parents through a letter explaining the purpose of the study and that participation of parents and children was strictly voluntary. After
obtaining parental consent, we provided the students with oral explanations and instructions on how to complete the questionnaire.

Results

SPSS 11.5J was used for the analysis.

(1) The level of attention to assessment of self as seen by others

We investigated whether there were differences in the level of attention to assessment of self as seen by others between the AD/HD group and the Typical group (t-test). Significant differences were not present in either attention to assessment of self as seen by others in each field (Table 1) or attention to assessment of self as seen by others in AD/HD traits (Table 2). Reasons given for the assessments (Table 3) were experience of criticism and the expectations of others.

(2) The correlation between the level of attention to assessment of self as seen by others and the illusion bias

To investigate the correlation between the level of attention to assessment of self as seen by others

| Table 1. Mean score for attention to assessment of self as seen by others in each field |
|-----------------------------------------|----------------|----------------|----------------|
|                                        | Scholastic Competence | Athletic Competence | Social Acceptance | Behavioral Conduct |
|-----------------------------------------|----------------|----------------|----------------|
| AD/HD group (n=44)                      | M (SD) | M (SD) | M (SD) | M (SD) |
| Typical group (n=169)                   | 2.60 (0.91) | 2.31 (0.98) | 2.24 (0.99) | 2.68 (0.91) |

| Table 2. Mean score for attention to assessment of self as seen by others in AD/HD traits |
|-----------------------------------------|----------------|
|                                        | Inattention | Hyperactivity/Impulsiveness |
|-----------------------------------------| M (SD) | M (SD) |
| AD/HD group (n=44)                      | 2.80 (0.86) | 3.16 (0.80) |
| Typical group (n=169)                   | 2.78 (0.73) | 3.25 (0.66) |

| Table 3. Reasons for assessment (AD/HD group) |
|-----------------------------------------------|----------------|
| Criticism                                    | Reasons for caring | Reasons for not caring |
| My mother often says, “where is your school report?” / People ask me, “why did you forget?” | My mother doesn’t say anything about my grades / No one cares if I forget something |
| Expectation                                  | I want my mother to think that I can do well in anything / I want people to think that I can do what I am supposed to do | It doesn’t matter to me what my mother thinks / It doesn’t matter what people think about me |
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others and the illusion bias, that is the gap between self-assessment as seen by others and assessment by others, the coefficient of Pearson’s correlation was used. Results appear in Table 4. The results show negative significant correlation only in the domain of behavioral conduct in the AD/HD group (γ = -0.31, p < .05). On the other hand, no significant correlation was shown in all domains in the typical group.

Discussion:

Compared with the Typical group, the AD/HD group did not have lower attention to assessment of self as seen by others. Attention to assessment of self as seen by others evokes the ideal self and expectations that encourage behavioral regulation to realize that ideal. At the same time, directing excessive attention to assessment of self as seen by others can also threaten mental health; for example, high levels of attention to assessment of self as seen by others may become a factor in depression (Watanabe; 2004). Therefore, although increasing attention with respect to assessment of self from the perspective of others is thought to be important with the aim of encouraging behavioral regulation, when thinking about how to motivate these children to increase their attention the reasons shown in Table 3 also need to be considered. Specifically, children should be encouraged to pay more attention to assessment of self as seen by others from the positive aspect of appropriate actions, not from negative aspects, such as by telling them, “if you do that people will laugh at you.” Moderate expectations from others may also be effective as motivation to encourage attention.

Some questions remain with regard to the level of attention in daily settings that was reflected in this study. In other words, it may be that while understanding of the need for attention to assessment of self as seen by others (understanding of situations in which focusing of attention is needed) is cultivated, difficulties are seen at the behavioral level in attention to assessment of self as seen by others (expressing in behavior one’s understanding of the need to focus attention), such as expressed by the lament “I did it before I realized, even though I knew I shouldn’t.” This may be part of the distress and worry inherent to children with AD/HD. In the future, it will be necessary to ascertain the level of attention in actual social situations, and

Table 4. The correlation between the level of attention to assessment of self as seen by others and the illusion bias

<table>
<thead>
<tr>
<th></th>
<th>Scholastic Competence</th>
<th>Athletic Competence</th>
<th>Social Acceptance</th>
<th>Behavioral Conduct</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD/HD group (n=44)</td>
<td>0.09</td>
<td>-0.01</td>
<td>-0.14</td>
<td>-0.31*</td>
</tr>
<tr>
<td>Typical group (n=169)</td>
<td>-0.08</td>
<td>-0.06</td>
<td>-0.01</td>
<td>-0.02</td>
</tr>
</tbody>
</table>

*p<.05
consider means of support in consideration of the gap between understanding and behavior.

There was a negative correlation between the level of attention to assessment of self as seen by others and the illusion bias not in the Typical group but in the AD/HD group. In the Typical group, there was no effect for self-cognition regardless of whether they have had a high or low level of attention to assessment of self as seen by others. In the AD/HD group, the higher the attention to assessment of self as seen by others in the domain of behavioral conduct, the less tendency there is toward the illusion bias. To be concrete, the members of the AD/HD group that care more about what their mothers think regarding their behavior experience a smaller gap between – their assessments of their mothers' opinions about their behavior and how their mothers assess their behavior. Children in the AD/HD group are sometimes given negative evaluations of their behavior in school and at home and they might have a smaller gap between the assessment of self as seen by others and the assessment of others. However, this study does not take into account whether the illusion bias is positive or negative. Further examination is necessary to determine if the negative self-assessment results in the efforts to modify their problem.

Acknowledgement

We would like to thank all the elementary school students and teachers, and mothers who cooperated in this study. We are grateful to many sources of support during the course of this research, in particular, Ms. Naoe Taira, Mr. Hiroyuki Yokoyama and Mr. Mitsuyuki Hirosawa.

This study was supported by a Grant-in-Aid for Scientific Research (Basic Research (B), No. 19330209; study representative: Mari Tanaka).

1) Japanese Scale of Self-Cognition (JSSC) was developed from Harter's Self-Perception Profile for Children. JSSC is composed of six domains for self-evaluation: Scholastic Competence (5 items), Athletic Competence (4 items), Physical Appearance (5 items), Social Acceptance (3 items), Behavioral Conduct (3 items) and Global Self-Worth (6 items).

References

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注意欠陥/多動性障害児における自己認識に関する研究
—自己評価への意識の程度と、他者に映る自己評価と他者評価との差の大きさとの関連—

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本研究は、AD/HD児が他者に映る自己評価にどの程度意識を向けているのか、また、他者に映る自己への意識の高さと、他者に映る自己評価と他者評価の差との大きさ（絶対値）の関連を明らかにすることを目的とした。対象は、AD/HDの診断を受けた児童とその母親の44組（以下、AD/HD群）と、定型発達児とその母親169組（以下、定型群）であった。結果、他者に映る自己評価への意識の程度において、AD/HD群と定型群の間に有意な差は見られなかった。また、AD/HD群においてのみ、他者に映る自己評価への意識の程度と、他者に映る自己評価と他者評価の差の大きさ（絶対値）との間に、有意な負の相関が認められた。他者に映る自己評価と他者評価との差の大きさが精神的健康に及ぼす影響や、その差が減少することと自己行動の修正を促進することとの関連について議論された。

キーワード：注意欠陥/多動性障害児、自己認識