Original article

Self-esteem in children with attention-deficit/ hyperactivity disorder

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Introduction Attention-deficit/hyperactivity disorder (ADHD) in children often manifests itself in difficult behaviors which may have an impact on their self-esteem. Findings from previous studies regarding self-esteem in children with ADHD are inconsistent. This study aimed to assess self-esteem in children with ADHD in comparison to healthy controls.

Methods This was a cross-sectional study of children aged 8-15 years, who had been diagnosed with ADHD. Children of the same age and gender, without ADHD or chronic illnesses, were enrolled as a comparison group. Self-esteem assessment using the Five-Scale Test of Self-Esteem for Children (FSC) was completed by the children themselves.

Results The study population included 130 children with a mean age of 11.05±2.21 years. Sixty-five cases were ADHD and 65 were healthy controls. The mean FSC score in the ADHD group was significantly lower than that of the control group indicating lower self-esteem in the ADHD group (45.06±8.08 vs 49.88±8.40, p=0.001). Among the children with ADHD, variables including age, gender, scores on school report, and comorbid conditions were not associated with the total self-esteem score. However, when focusing specifically on self-esteem subscales, the school report was significantly related to the academic subscale of self-esteem in children with ADHD (β 0.81, 95%CI 0.11-1.5, p=0.03).

Conclusion Findings from this study have suggested that children with ADHD perceive themselves more negatively compared with healthy controls. Fostering self-esteem should be included in the comprehensive care for children with ADHD. **Chiang Mai Medical Journal 2017;56(1):1-7.**

Keywords: attention-deficit/hyperactivity disorder, self-esteem, children

Introduction

Attention-deficit/hyperactivity disorder (ADHD) is the most common childhood neurobehavioral disorder affecting executive functioning in school-age children. Approximately 5-6.5% of children and 2.5% of adults are affected by ADHD (1-3). Children with ADHD are more likely than their peers to have impairments in adaptive functioning, which are often manifested as difficult behaviors such as aggression, poor rule-regulated behaviors, and learning difficulties. Behavioral problems, school performance, and social acceptance, can highly and specifically influence self-esteem (4). On the other hand, poor self-concept, specifically related to academic competence, can contribute directly to

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disruptive and antisocial behaviors in early adolescence (5).

Self-esteem is specifically the children's feelings about themselves (6). Children with impaired self-esteem are at risk of developing psychosocial problems (7,8). School-aged children are at a critical point of self-esteem development which is particularly influenced by their peers during adolescence (9). Studies of self-esteem in children mostly focus on those with chronic diseases (10). Findings from previous studies focusing on self-esteem among children with ADHD are inconsistent. Some studies have found that children with ADHD had lower self-esteem than normal peers; (9, 11-14) however, others revealed no difference in self-esteem scores between the two groups but showed instead that self-esteem scores were higher in children with ADHD than those without ADHD (15,16). Accumulated findings suggest that children with ADHD inflate their competence despite marked difficulties in multiples domains (16-18). This phenomenon, termed the "positive illusory bias", is defined as overestimation of skills when compared to actual competence. Relative to their parents, older children and adolescents with ADHD tend to under-report their own symptoms and overestimate how well they are functioning (15,16).

Separate from inconsistent results, most studies have agreed that a positive self-esteem may help ADHD patients to cope with difficulties in everyday life (17, 19). Furthermore, a systemic review in adults has revealed that ADHD was associated with lower self-esteem in adulthood (20). Therefore, in order to identify self-esteem difficulties early, this study assesses self-esteem in children with ADHD in comparison to children without ADHD. In addition, predicting factors associated with self-esteem scores are also examined.

Methods

Participants

A cross-sectional study of 65 children and adolescents aged 8-15 years old diagnosed with ADHD were enrolled from the Developmental and Behavioral Pediatrics Clinic at Chiang Mai University Hospital. Children and adolescents diagnosed as not having ADHD or chronic illnesses, who were age- and gender- matched, were randomly selected as a comparison group. Those who could not understand Thai were excluded. Demographic characteristics of participants and their families were obtained from interviews. A diagnosis of ADHD was made by developmental pediatricians using the DSM-IV-TR criteria (21) based on a comprehensive medical history, office observation, physical examination, and through the use of standardized parent and teacher rating scales (SNAP-IV), which is used for ADHD assessment (22).

The details of disease and management were reviewed from medical records. Growth parameters including weight and height were collected as they may contribute to self-esteem assessment. The most recent school reports were recorded in grade point average (GPA). Informed consent and assent were obtained from all participants. This study was approved by the Ethics Committee of the Faculty of Medicine, Chiang Mai University.

Assessment tools

The Five Scale Test of Self-Esteem for children, Thai-version (Thai-FSC) (23) was administered to the children in both groups. The FSC, a 36-item child-rated questionnaire assessing domain-specific self-esteem, measures core domains in social, academic, family, body image and global scales. The FSC is a practical instrument to assess various areas of self-esteem with good internal consistencies (Cronbach's alpha coefficients = 0.60-0.78). Higher FSC scores indicate better self-esteem.

Sample size was calculated from previous study (9) to detect the difference of 0.25 of the total self-perception score with a standard deviation of 0.50. The power of 0.80 and α of 0.05 were used so the number of participants for each group was 65.

Statistical analysis

Data were analyzed using the SPSS Statistics Program, Version 22.0 (IBM Corp, Armonk, NY) for Windows. Mean, standard deviation (SD), and percentages were calculated. A Student's t-test and a chi-square test were used to compare continuous and categorical variables respectively. The multiple linear regression analysis was used to assess variables associated with self-esteem scores. A p-value of less than 0.05 was considered to be statistically significant.

Results

The study population was 130 children with a mean age of 11.05±2.21 years, including 65

children with ADHD and 65 controls. Participants' demographic characteristics are shown in Table 1. The characteristics of the children and their families were comparable between the 2 groups, except that children with ADHD had significantly poorer school reports. Among the children with ADHD, the most common type of ADHD was the combined type (73.8%) and approximately half of them had comorbidities including learning disorders, mild intellectual disabilities, tic disorders, and other underlying conditions. The mean age at first diagnosis was 8.01±2.38 years.

The ADHD group had lower scores in all domains of the Thai FSC, especially the family, body image, global scales, and the total scores which were significantly lower than those of the control group, as shown in Table 2. Among the children with ADHD, variables including age, gender, scores on school report, and comorbid conditions were not associated with the total self-esteem score (Table 3). Similar findings were found from the multiple linear regression analysis. However, when focusing specifically on self-esteem subscales, the school report was significantly related to the academic subscale of self-esteem in children with ADHD (β 0.81, 95%CI 0.11-1.5, *p*=0.03).

Discussion

The findings in this study showed that ADHD patients had significant lower self-esteem scores than the control group. The family, body image, and global subscales were lower than those of the controls with statistical significance. These findings were consistent with previous study, (9) which found that children with ADHD aged 8 to 12 years had lower self-perception scores than non-ADHD controls. Another study of ADHD children and adolescents showed similar results, (14) as did the other two studies (4, 12). However, the findings were inconsistent with studies which reported higher self-esteem in children with ADHD who overestimate their competence relative to adult reports (15, 17) especially in boys (17, 24).

Interestingly, there were no reported differences in the academic subscales of the self-esteem scores between ADHD children and their non-ADHD peers even when they had significantly lower school reports scores. This may be explained by their defense mechanisms or be part of the positive illusory bias phenomenon meaning that the school reports would not be found to show a correlation with total self-esteem scores in children with ADHD

Table 1. Demographic characteristics of children with ADHD and controls

	ADHD (n=65)	Controls (n=65)	*p-value*
Child			
Age, mean (SD)	11.13 (2.24)	10.96 (2.19)	0.65
Gender, male (%)	45 (69%)	45 (69%)	1.00
Weight <3rd or >97th percentile (%)	14 (22%)	10 (15%)	0.41
Height <3rd or >97th percentile (%)	9 (14%)	8 (12%)	0.85
School reports, GPA	2.65 (0.75)	3.03 (0.73)	0.004
Family			
Father's age, mean (SD)	40.77 (8.61)	42.29 (8.10)	0.30
Mother's age, mean (SD)	38.51 (5.72)	38.29 (6.75)	0.85
Father's education, mean (SD)	11.41 (4.75)	11.28 (5.17)	0.88
Mother's education, mean (SD)	11.29 (4.78)	10.73 (4.99)	0.52
Marital status, couple (%)	54 (83%)	58 (89%)	0.31
Number of children, mean (SD)	1.88 (1.21)	1.86 (0.66)	0.93
Household income, mean (SD)	31471 (30234)	23706 (20255)	0.10

ADHD; attention-deficit/hyperactivity disorder, SD; standard deviation, GPA; grade point average

Table 2. The Five Scale Test of Self-Esteem for Children scores of children with ADHD and control groups

	ADHD (n=65)	Controls (n=65)	Mean difference, (95% CI)	*p-value*
Domains of self-esteem, mean (SD)				
Social	9.43 (2.19)	10.05 (2.38)	-0.62 (-1.41, 0.18)	0.13
Academic	8.72 (2.19)	9.28 (2.16)	-0.55 (-1.31, 0.20)	0.15
Family	12.48 (2.80)	13.95 (2.47)	-1.48 (-2.39, -0.56)	0.002
Body image	4.58 (2.28)	5.37 (1.88)	-0.79 (-1.51, -0.06)	0.03
Global	10.00 (1.93)	11.23 (2.38)	-1.23 (-1.98, -0.48)	0.002
Total self-esteem	45.06 (8.08)	49.88 (8.40)	-4.82 (-7.68, -1.96)	0.001

ADHD = attention-deficit/hyperactivity disorder; CI = confidence interval; SD = standard deviation

Table 3. Predictors of total scores of The Five Scale Test of Self-Esteem for Children in children with ADHD (n=65)

Variables	N	Mean (SD)	*p*
Age, year			
8-10	33	46.55 (8.51)	0.13
11-15	32	43.53 (7.44)	
Gender			
Male	45	44.64 (8.42)	0.54
Female	20	46.00 (7.38)	
ADHD subtype			
Combined	48	45.17 (8.01)	0.86
Other	17	44.76 (8.53)	
Weight			
<3rd or >97th percentile	14	44.43 (9.53)	0.74
3rd-97th percentile	51	45.24 (7.74)	
Height			
<3rd or >97th percentile	9	48.22 (7.43)	0.21
3rd-97th percentile	56	44.55 (8.13)	
School reports, GPA			
<2.5	27	44.81 (7.00)	0.84
>2.5	38	45.24 (8.86)	
Comorbidities			
Yes	33	45.48 (8.81)	0.67
No	32	44.63 (7.38)	

ADHD; attention-deficit/hyperactivity disorder,
SD; standard deviation; GPA = grade point average

in this study. However, when focusing on self-esteem subscales in the ADHD group, the school report was significantly related to the academic subscale of self-esteem. Improving school reports may not be substantial factors for fostering all aspects of self-esteem in children with ADHD.

This study did not find factors associated with the total self-esteem score in children and adolescents with ADHD. From the multiple linear regression analysis, variables including age, gender, scores on school report, and comorbid conditions were not associated with the total self-esteem score. These were consistent with the findings of Barber et al. (9) and Houck et al. (4) who found that gender did not show a correlation with self-perception scores. On the other hand, some studies found that girls reported lower self-esteem scores than boys regarding mental well-being and poorer coping strategies (25, 26). Older children and more internalizing behavior problems predicted lower self-concept (4), while the age was reported not to be correlated with self-esteem scores (14). Furthermore, comorbid conditions were not related to self-esteem in their study, (14) which is similar to this study. Inconsistent with the findings from another study, which compared among ADHD patients both with and without comorbid aggression and controls; (13) the ADHD patients with comorbid aggression had lowest self-concept scores, followed by those without comorbidity, and the controls scored highest.

The finding form this study revealed that children with ADHD had perceived themselves more negatively than the control group. Although stimulant treatment of ADHD was shown to increase self-esteem scores, (27, 28) the children and adolescents with ADHD in this study (97% received CNS stimulants)

still had lower self-esteem scores than their non-ADHD peers. It was shown that medication treatment had a positive influence on how teachers interacted with children affected by ADHD, and this could contribute to the indirectly improved self-esteem in these children.

This study has measured self -esteem using an assessment tool to evaluate various aspects of self-esteem in children with ADHD compare to non-ADHD controls. The children and adolescents with ADHD and the control groups were matched for age, gender, family backgrounds (age, education and family status), and economic status. However, some limitations needed to be addressed. Firstly, as the study was a cross-sectional by nature, this study cannot determine the temporal relationship between ADHD and different domains of self-esteem. A longer period of study would provide more helpful information. Secondly, although the study had an adequate sample size for evaluation compared to controls, predictors associated with self-esteem in the ADHD group were not found due to the small number of subjects. It will be important for future research to examine self-esteem related factors in children with ADHD and how to improve self-esteem for these children. Thirdly, self-esteem scores were derived from self-report questionnaires completed by the children themselves without other investigations of social function. This data set should be expanded in further studies.

In conclusion, the results of this study have suggested that children and adolescents with ADHD perceive themselves more negatively as compared with their non-ADHD peers. Other than pharmacotherapy and behavioral interventions, special attention towards fostering self-esteem should be included in the comprehensive care of children with ADHD.

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ความรู้สึกคุณค่าในตนเองในเด็กที่เป็นโรคสมาธิสั้น

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บทนำ โรคสมาธิสั้นในเด็กมักแสดงปัญหาพฤติกรรมทำให้อาจมีผลกระทบต่อความรู้สึกคุณค่าในตนเองของเด็ก ผลจากการศึกษาก่อนหน้านี้ในเรื่องความรู้สึกคุณค่าในตนเองของเด็กที่เป็นโรคสมาธิสั้นยังสรุปไม่ได้แน่นอน การศึกษานี้จึงมีวัตถุประสงค์เพื่อประเมินความรู้สึกคุณค่าในตนเองในเด็กที่เป็นโรคสมาธิสั้นเปรียบเทียบกับเด็กปกติ

วิธีการศึกษา เป็นการศึกษาแบบตัดขวางของเด็กอายุ 8-15 ปี ที่วินิจฉัยว่าเป็นโรคสมาธิสั้น โดยมีเด็กที่ไม่เป็นโรคสมาธิสั้นหรือโรคเรื้อรังอื่น ๆ ที่อายุและเพศใกล้เคียงกันเป็นกลุ่มเปรียบเทียบ ความรู้สึกคุณค่าในตนเองประเมินด้วย Five-Scale Test of Self-Esteem for Children (FSC) โดยให้เด็กเป็นผู้ตอบเอง

ผลการศึกษา เด็กที่เข้าร่วมการศึกษามีจำนวน 130 ราย อายุเฉลี่ย 11.05±2.21 ปี โดยเป็นโรคสมาธิสั้น 65 ราย และเด็กสุขภาพดีอีก 65 ราย คะแนนเฉลี่ย FSC ในกลุ่มโรคสมาธิสั้นต่ำกว่าคะแนนของกลุ่มควบคุมอย่างมีนัยสำคัญแสดงถึงความรู้สึกคุณค่าในตนเองที่ต่ำกว่า (45.06±8.08 vs 49.88±8.40, p=0.001) ในกลุ่มโรคสมาธิสั้นไม่พบว่าปัจจัยต่าง ๆ เช่น อายุ เพศ คะแนนผลการเรียน หรือภาวะที่พบร่วมด้วยมีความสัมพันธ์กับคะแนนรวมของความรู้สึกคุณค่าในตนเอง อย่างไรก็ตาม เมื่อประเมินเฉพาะด้านพบว่าผลการเรียนมีความสัมพันธ์กับความรู้สึกคุณค่าในตนเองด้านการเรียนอย่างมีนัยสำคัญ (β 0.81, 95%CI 0.11-1.5, p=0.03).

สรุปผล ผลการศึกษาแสดงให้เห็นว่าเด็กที่เป็นโรคสมาธิสั้นประเมินความรู้สึกคุณค่าในตนเองต่ำกว่าเด็กกลุ่มควบคุม การดูแลรักษาเด็กที่เป็นโรคสมาธิสั้นควรพิจารณาถึงการสร้างเสริมความรู้สึกคุณค่าในตนเองร่วมด้วย

คำสำคัญ: โรคสมาธิสั้น ความรู้สึกคุณค่าในตนเอง เด็ก