The Relationship between Primary Caregivers' Psychosocial Factors and Self-esteem in Children and Adolescents with ADHD: An Exploratory Cross-sectional Study

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ABSTRACT

Objective: This study examined the correlation between primary caregivers' psychosocial factors and self-esteem in children and adolescents with attention-deficit/hyperactivity disorder (ADHD).

Materials and Methods: A cross-sectional study involving primary caregivers and their children with ADHD, aged 8-15, was conducted from September 2022 to February 2023. The children's self-esteem was assessed using the Five-Scale Test of Self-Esteem for Children. Primary caregivers' psychosocial factors were assessed using the Attitude of Parenting Questionnaire, Parenting Style and Dimension Questionnaire, Patient Health Questionnaire-9, and Generalized Anxiety Disorder 7-item. Descriptive statistics and multivariable linear regression were used to determine the associations among variables.

Results: The study included 66 pairs of children and adolescents with ADHD and their primary caregivers. The study found 53% of caregivers screened positive for depression, while 16.7% screened positive for anxiety. Almost all caregivers (90.9%) adopted an authoritative parenting. The mean self-esteem score in participants with ADHD was 39.23±8.99. Younger caregivers, those with an education level below a bachelor's degree, higher monthly income, positive screening for depression, and lower attitudes toward parenting scores were significantly associated with low self-esteem scores in their children.

Conclusion: Age, education level of caregivers, and monthly family income were significantly correlated with the self-esteem of children and adolescents with ADHD. The attitudes of caregivers towards parenting and depression in caregivers also impacted self-esteem of children with ADHD under their care. Thus, strategies aimed at promoting positive caregiving attitudes, regular screening of caregivers for depression, and providing appropriate treatment are recommended to enhance self-esteem in children and adolescents with ADHD.

Keywords: Attention-deficit/hyperactivity disorder; self-esteem; caregiver; psychosocial factor; depression (Siriraj Med J 2023; 75: 584-591)

INTRODUCTION

Attention Deficit/Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder among children and adolescents, with a global pooled prevalence ranging between 5.3%-7.2%.[1] The primary cause of ADHD is a deficit in the brain's ability to regulate concentration, inhibition, and the organization of activities. The three hallmark symptoms of ADHD include inattention, impulsivity, and

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https://doi.org/10.33192/smj.v75i8.263447

hyperactive behavior, exhibited to a greater degree than typical children of the same age. The severity of ADHD varies among individuals; the Diagnostic and Statistical Manual, Fifth Edition (DSM-5) has established criteria for classifying ADHD severity as "mild", "moderate", or "severe" based on ADHD-related behaviors and the impact on academic and social functioning.[2]

ADHD symptoms can contribute to several negative outcomes for children and adolescents, including academic failure, problems with peer acceptance, and strained family relationships. These repercussions often result in lower self-esteem among the affected children and adolescents. Those with a negative perception of their abilities tend to struggle when dealing with stressful events, which can lead to the development of maladaptive coping strategies.[3] A study by Mazzone et al.[4] found correlation between low self-esteem and poorer outcomes in ADHD treatment, as well as an increase in mental health issues. Additionally, a study by Glass et al.[5] found that children and adolescents with low self-esteem had a higher prevalence of behavioral and mental problems.

Encouraging high self-esteem in children and adolescents to can help promote more effective treatment outcomes, develop proper problem-solving skills, and decrease mental and behavioral problems. Consequently, recent studies have focused more on factors associated with the self-esteem of ADHD patients to devise better treatment plans. Factors linked to low self-esteem include severe ADHD symptoms[6,7], side effects from ADHD medication[8], severe aggressive behaviors[9] and depression.[8] However age, gender, average grade points, and intelligence quotient (IQ) showed no correlation with the self-esteem of these children.[10]

Caregivers play a crucial role in promoting superior treatment outcomes for patients with ADHD, as they are primarily responsible for managing patients' behavior, medication intake, and providing assistance and mental support when patients encounter difficulties, such as learning and forming relationships. Support from caregivers promotes increased self-esteem in children and adolescents, leading to an improved prognosis for ADHD.

Although parents play a significant role in fostering self-esteem in patients with ADHD, no studies have analyzed the association between caregivers' psychosocial factors and the self-esteem of ADHD patients. Therefore, the objective of our study is to explore the caregivers' psychosocial factors, their attitudes towards child care, and their parenting styles which influence the level of self-esteem in children and adolescents.

MATERIALS AND METHODS

Study design and participants

This cross-sectional study was conducted amongst dyads of ADHD patients and their caregivers at Siriraj Hospital to investigate the correlation between caregivers' psychosocial factors and self-esteem of children and adolescents with ADHD undergoing treatment. Using an estimation for a medium effect size on major variables at 80% statistical power and 5% maximum type I error[11], we calculated a required sample size of 66 pairs for this study. The inclusion criteria contain pairs of a primary caregiver and a patient with ADHD, aged 8 to 15, receiving ADHD treatment at Siriraj Hospital. ADHD patients who had comorbidities with intellectual disability, autism spectrum disorder or other psychological conditions such as depression, anxiety or schizophrenia were excluded.

Data collection

Ethical approval was granted by the Siriraj Institutional Review Board (COA no. Si 661/2022 (IRB1)). Data were gathered from September 2022 to February 2023. Eligible children and teenagers with ADHD, along with their parents were thoroughly informed about this study. After providing informed consent, they completed paper-based questionnaires. This study utilized five questionnaires: The Five-Scale Test of Self-Esteem for Children, The Attitudes of Child Care Questionnaire, Parenting Styles and Dimensions Questionnaire, Patient Health Questionnaire-9, and Generalized Anxiety Disorder 7-item. If participants were unable to read the questionnaire themselves, the research team read it to them.

Measurements

Demographic information form

This form recorded demographic and clinical data of both the primary caregiver and their children with ADHD. The collected patient's information compromised gender, age, and grade point average (GPA). The primary caregiver's data included gender, age, marital status, educational level, and monthly household income. The patient's clinical information, including type of ADHD, severity of ADHD symptoms, and comorbidities, was procured from the patient's medical record review and evaluation by their attending physician. Severity of ADHD was designated by attending physicians according to the DSM-5 criteria[2] as follows:

- Mild: Few symptoms beyond those required number for diagnosis are present, and symptoms result in minor impairment in social or school settings.

- Moderate: Symptoms or functional impairment between "mild" and "severe" are present.
- Severe: Many symptoms beyond the number needed for diagnosis are present; symptoms result in marked impairment in social or school settings.

The Five-Scale Test of Self-Esteem for Children, Thai-version (Thai-FSC)[12]

The Thai FSC, a child-rated questionnaire comprising 36-items, is a practical instrument for effective assessment of self-esteem in children aged 6 to 18. It exhibits good internal consistency (Cronbach's alpha coefficients = 0.60-0.78). Total scores range from 0 to 72 points, and while the questionnaire does not have a cut-off point, a higher FSC score indicates better self-esteem.

The Attitudes of Parenting Questionnaire[13]

To evaluate caregivers' attitudes towards child care, we employed the Attitudes of Parenting Questionnaire. In this questionnaire, caregivers are self-responders to 40 items addressing understanding and acceptance of their children, comprehension of their children's disease and treatment, and the level of support they receive from their community. The total score extends from 30 to 180 points, and while the questionnaire lacks a cut-off score to categorize attitudes, a high score indicates a positive parenting attitude. The questionnaire has strong internal consistency (Cronbach's alpha coefficients = 0.84).

Parenting Styles and Dimensions Questionnaire, Thai-version (Thai-PSDQ)[14]

The Thai-PSDQ evaluates parenting styles. Here, primary caregivers rate the frequency of certain behaviors towards their child based on 32 statements, using a five-point Likert scale (ranging from "Never" = 1 to "Always" = 5). For example, parents rate how much they encourage their children to freely express themselves, even when disagreeing with the parents. The questionnaire explores different parenting styles with 15 items on authoritative parenting, 12 on strict authoritarian parenting, and five on permissive parenting. To obtain an overall authoritative, authoritarian, and permissive score for each parenting style, an average of the items relevant to each style was computed, with total scores for each parenting style ranging from one to five. A caregiver is considered to predominately practice the parenting style with the highest average score. Authoritarian parents typically exhibit rational, issue-oriented behavior when directing their child's activities, while evaluating both autonomous self-will and disciplined conformity. Authoritarian parents strongly influence their child's behavior and attitudes, adhering strictly to a pre-established code of conduct. These parents generally adopt a non-collaborative approach, do not encourage verbal discourse, and expect their child to submit to their perspectives. In contrast, the permissive parenting style is marked by a non-punitive and affirmative attitude towards the child's impulses, desires, and actions. These parents rarely impose strict control and seldom enforce conformity to externally-defined standards.[15] PSDQ demonstrated internal consistency of was 0.86 for authoritative, 0.82 for authoritarian, and 0.64 for permissive parenting styles.

Patient Health Questionnaire-9, Thai-version (Thai PHQ-9)[16]

The Thai PHQ-9 was employed to evaluate depression in primary caregivers. This tool requires caregivers to rate the frequency of experiencing any of the listed problems over the preceding two weeks by responding to nine statements on a 4-point Likert scale (ranging from "Not at all" = 0 to "Nearly every day" = 3). The combined scores ranged from 0 to 27, with higher scores indicating more severe depression. Previous research on the Thai PHQ-9 in the general Thai population revealed that a summed score of 9 or greater suggested a major depressive disorder, boasting a sensitivity of 0.84 and specificity of 0.77.

Generalized Anxiety Disorder 7-item, Thai-version (GAD-7, Thai-version)[17]

The GAD-7, Thai version, was used in this study to measure symptoms of generalized anxiety disorder (GAD). The scale consists of seven items, corresponding to the DSM-V symptom criteria for GAD. Primary caregivers indicate the frequency of experiencing any of the listed problems over the past two weeks on a 4-point Liker scale (ranging from "Not at all" = 0 to "Nearly every day" = 3). The total possible score ranges from 0 to 21, with higher scores indicating more severe GAD symptoms. A GAD-7 score of ≥ 5 serves as a threshold for identifying GAD, exhibiting a sensitivity and specificity of 0.89 and 0.82, respectively.

Data analysis

Data was processed using SPSS Statistics Program, Version 26 (IBM Corp, Armonk, NY). Descriptive analysis was conducted to compute the frequency and percentage of categorical data, along with the mean ± standard deviation (SD). As our study aims to explore the connection between psychosocial variables of primary caregivers and their children's self-esteem scores, we examined all

potential factors of both children and their caregivers through multivariable linear regression, irrespective of the statistically significant results of univariate linear regression for each variable. In the multivariable linear regression, a p-value of less than 0.05 was considered statistically significant.

RESULTS

From September 2022 to February 2023, we followed up with 73 children aged 8-15 diagnosed with ADHD at Siriraj Hospital. Among these children, 4 had intellectual disabilities and 3 had autism spectrum disorder, and were thus excluded based on our exclusion criteria. Consequently, 66 children were eligible to participate in this study. All 66 pairs of children and adolescents with ADHD and their primary caregivers agreed to participate in this study. The average age of these children and teenagers with ADHD was 12.09 ± 1.83 years, and 65.2% were males. The most prevalent type of ADHD was the combined type (54.5%), and mild ADHD symptoms were observed in 65.2% of the participants. Comorbidity in the form of learning disorders, was present in 62.1% of cases (Table 1).

The primary caregivers had an average age of 47.86 ± 5.56 years. The majorities were females (80.3%), and mothers made up 68.2% of the caregivers. About 81.8% were married, and over half held a bachelor's degree or higher (68.2%). A monthly family income exceeding $885 was reported by 69.7% of participants. Nearly all caregivers (90.0%) employed an authoritative parenting style and exhibited an average of childcare attitude score of 125.85 ± 19.75. Moreover, 53% were screened positive for depression, and 16.7% for generalized anxiety disorder (Table 1).

The average self-esteem score among all participants was 39.23 ± 8.99. Univariable linear regression analysis (Table 2) revealed a positive correlation between self-esteem scores and both a high GPA ($p < 0.001$) and the hyperactive/impulsive type ($p = 0.015$). In contrast, more severe ADHD symptoms and the presence of comorbidity were negatively correlated with self-esteem scores, with p-values of <0.001 and 0.022, respectively. Among caregiver factors, older age ($p = 0.001$), an educational level of bachelor's degree or higher ($p < 0.001$), a high parental attitude score ($p < 0.001$), and an authoritative parenting style ($p = 0.009$) were positively correlated with self-esteem. Meanwhile, higher family income, positive depression and anxiety screenings were negatively correlated with participants' self-esteem, with p-values of 0.004, <0.001 and 0.002, respectively.

TABLE 1. Demographic characteristics of children and adolescents with ADHD and their primary caregivers.

Demographic characteristics	Descriptive results
Child	
Gender, male (%)	43 (65.2)
Age[a]	12.09 (1.83)
GPA[b]	2.55 (2.10, 3.33)
ADHD type, n (%)	
Combined type	36 (54.5)
Inattentive type	19 (28.8)
Hyperactive/impulsive type	11 (16.7)
Severity ADHD, n (%)	
Mild	43 (65.2)
Moderate	23 (34.8)
Comorbid, n (%)	25 (37.9)
Total self-esteem score[a]	39.23 (8.99)
Primary caregiver	
Gender, male (%)	13 (19.7)
Age[a]	47.89 (5.56)
Marital status, n (%)	
Single	3 (4.5)
Married	54 (81.8)
Divorce/separate	9 (13.6)
Educational level, n (%)	
Below bachelor's degree	21 (31.8)
Bachelor's degree and above	45 (68.2)
Monthly household income, n (%)	
<885 US dollars[+]	20 (30.3)
≥885 US dollars[+]	46 (69.7)
Parenting style, n (%)	
Authoritarian	6 (9.1)
Authoritative	60 (90.9)
Positive depression screening, person (%)	35 (53)
Positive anxiety screening, person (%)	11 (16.7)
Child care attitude score[a]	125.85 (19.74)

Data presented as number (percentage), [a]Data presented as mean (SD), [b]Data presented as median (IQR)
Abbreviations: GPA = grade point average, ADHD = attention-deficit/hyperactivity disorder
[+] 1 US dollar = 33.92 bahts

TABLE 2. Univariable linear regression analysis for association between demographic characteristics and total self-esteem scores.

Demographic characteristics	Regression coefficient (95% CI)	P-value
Child		
Gender		
Male	Reference	
Female	-2.82 (-7.44, 1.80)	0.228
GPA	9.87 (7.64, 12.10)	<0.001*
ADHD type		
Combined type	Reference	
Inattentive type	0.24 (-4.68, 5.16)	0.922
Hyperactive/impulsive type	7.45 (1.47, 13.43)	0.015*
Severity ADHD		
Mild	Reference	
Moderate	-10.49 (-14.36, -6.62)	<0.001*
Comorbid		
No	Reference	
Yes	-5.20 (-9.60, -0.79)	0.022*
Primary caregiver		
Gender		
Male	Reference	
Female	-2.50 (-8.06, 3.07)	0.374
Age	0.62 (0.25, 1.00)	0.001*
Marital status		
Single	-9.89 (-21.54, 1.76)	0.095
Married	2.19 (-4.11, 8.48)	0.490
Divorce/separate	Reference	
Educational level		
Below bachelor's degree	Reference	
Bachelor's degree and above	9.48 (5.33, 13.64)	<0.001*
Monthly household income		
<885 US dollars+	Reference	
≥885 US dollars+	-6.78 (-11.24, -2.24)	0.004*
Parenting style		
Authoritarian	Reference	
Authoritative	9.97 (2.63, 17.30)	0.009*
Positive depression screening	-12.89 (-15.98, -9.80)	<0.001*
Positive anxiety screening	-9.00 (-14.54, -3.46)	0.002*
Child care attitude score	0.40 (0.34, 0.45)	<0.001*

*Statistically significant at p-value < 0.05

Abbreviations: GPA = grade point average, ADHD = attention-deficit/hyperactivity disorder

+ 1 US dollar = 33.92 bahts

To explore parental psychosocial factors associated with participants' self-esteem, we analyzed all demographic characteristics of both parents and subjects using multivariable linear regression (Table 3). Older age and higher education positively correlated with the self-esteem score of children and teenagers with ADHD (p = 0.002 and < 0.001, respectively). In comparison, higher family income was negatively correlated with self-esteem scores ($p < 0.001$). An increase of 1 point in child care attitude score corresponded to an increase of 0.17 points in participants' self-esteem score (95% CI 0.10, 0.23; $p < 0.001$). Furthermore, positive depression screenings remained negatively correlated with participant self-esteem (β = -5.58; 95% CI -7.22, -3.95; $p < 0.001$).

DISCUSSION

Our study determined that numerous factors associated with primary caregivers were linked to the self-esteem of children and adolescents with ADHD. Caregivers who demonstrated positive parental attitudes tended to have patients with better self-esteem. This finding is consistent with a study by Khaleque et al. (2013), which suggested that better parental attitudes towards child care, coupled with appropriate acceptance and responsiveness to their children, had a medium effect size on the children's self-esteem.[18] This information shows the influence of positive individual and family relationships on the development of self-esteem.

On the other hand, caregivers with depression were associated with low self-esteem in children and teenagers. This result aligns with the study by Krauss et al. (2021) which found that caregiver's depression negatively predicted child self-esteem.[19] Parents with depression tend to create a stressful and uncomfortable atmosphere within the household, causing children to hesitate initiating social interaction with others and leading to a perception of reduced self-worth. Another explanation for the impact of caregiver depression on

TABLE 3. Multivariable linear regression analysis for association between primary caregiver's psychosocial factors and the child's mean total self-esteem scores.

Primary caregiver's psychosocial factors	Regression coefficient (95% CI)	P-value
Categorical variable		
Gender		
Male	Reference	
Female	-2.65 (-4.67, 0.63)	0.093
Marital status		
Single	-1.64 (-6.32, 3.05)	0.486
Married	-2.30 (-4.46, 0.13)	0.089
Divorce/separate	Reference	
Educational level		
Below bachelor's degree	Reference	
Bachelor's degree and above	8.91 (4.47, 13.34)	<0.001*
Monthly household income		
<885 US dollars+	Reference	
≥885 US dollars+	-8.27 (-12.52, -4.01)	<0.001*
Parenting style		
Authoritarian	Reference	
Authoritative	0.22 (-2.70, 2.27)	0.862
Positive depression screening	-5.58 (-7.22, -3.95)	<0.001*
Positive anxiety screening	-2.43 (-4.99, -0.13)	0.062
Numerical variable		
Age	0.22 (0.08, 0.35)	0.002*
Child care attitude score	0.17 (0.10, 0.23)	<0.001*

*Statistically significant at p-value < 0.05

+ 1 US dollar = 33.92 bahts

child self-esteem is genetic redisposition. Low self-esteem is considered an early symptom of depression in children and adolescents and is thought to be inherited from parents to a degree of 60-70%.[20]

Furthermore, our research revealed that caregivers' age positively correlated with the self-esteem of children and teenagers with ADHD. This outcome is consistent with Jendreizik's study, which found that older caregivers were associated with more effective proper parenting, understanding, and acceptance towards their children in the prognosis and treatment of ADHD.[21] Caregivers' positive attitudes towards children contribute to better self-esteem in patients under their care.

Our study found that a higher education level in caregivers is associated with elevated self-esteem in children. Caregivers with more advanced education are more likely to have a deeper understanding of ADHD and the skills to address behavioral problems. This finding aligns with the study by Parker and Benson (2004) which stated that caregivers who pay attention to their children's problems and appropriately handle such situations appropriately correlated positively with children's self-esteem.[22] In addition, caregivers with higher level of education tend to be more attentive and supportive of their children's education pursuits, which aligns Flouri (2006) who suggested that increased attention and encouragement from caregivers towards their child's education can enhance a child's self-efficacy and subsequently raise self-esteem.[23]

Interestingly, our study revealed that higher family income correlates negatively with the self-esteem scores of children and teenagers with ADHD. This contradicts previous studies that reported poverty as a factor contributing to a caregiver's emotional stress and impaired parenting behavior, leading to lower self-esteem in children.[24] We hypothesize that caregivers with higher incomes may tend to invest more time in their careers than on their child care, possibly experiencing more workplace stress, which may result in caregiver-child conflict. A strained relationship between caregivers and children could potentially have a negative impact on the children's self-esteem.[25]

There have been several studies focusing on the sociodemographic factors of patients with ADHD that are associated with their self-esteem.[3,10] However, fewer studies have investigated the influence of caregivers on the self-esteem of children and teenagers, despite caregivers playing a critical role in monitoring patient behavior and supporting patients with daily struggles. As a result, this study is pioneering in Thailand as it explores caregiver psychosocial factors affecting the affect the self-esteem of children and adolescents with ADHD. Our findings should prompt could urge healthcare providers working with children and adolescents with ADHD to focus on caregivers' attitudes towards child care along with parental depression screening. These factors significantly influence patients' self-perception and can contribute to improved outcomes in ADHD treatment.

Limitations

Our study had several limitations. First, although the statistical power of our study is acceptable, the participant group consisted of only 66 children and adolescents aged 8 to 15 with ADHD. All of whom received treatment at the pediatric developmental clinic at Siriraj Hospital. Therefore, the generalizability of our results may be limited. Future studies are recommended to gather data from multiple centers and larger sample sizes to increase applicability of our findings. Second, our study did not capture some variables potentially linked to the self-esteem of children and teenagers, such as the quality of caregiver-child relationships and family financial debt. These factors warrant exploration in a subsequent research. Last but not least, self-esteem scores collected from children and adolescents may possibly be biased due to potential self-overestimation. These scores were derived solely from self-report questionnaires, without the inclusion of additional investigations of social function. Future studies should consider broadening the data to include these investigations.

CONCLUSION

The caregivers' age, education level, and monthly family income had significant correlations with the self-esteem of children and teenagers with ADHD. Moreover, caregivers' attitudes towards child-rearing and the presence of depression in caregivers also influenced the self-esteem of patients with ADHD under their care. Enhancing caregivers' awareness and understanding of ADHD symptoms and treatment, promoting self-acceptance and self-value among patients, encouraging a positive attitude towards child-rearing, and screening and managing caregiver depression can boost children's self-esteem, contributing to more successful ADHD treatment outcomes.

ACKNOWLEDGEMENTS

The authors would like to gratefully acknowledge Ms. Kanokwan Sommai for her assistance with statistical analysis. Moreover, this research could not have been completed without the cooperation of participants and their caregivers.

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