

Comparison of Academic Help-Seeking, Problem-Solving Strategies, and Self-Efficacy in Students with Attention Deficit/Hyperactivity Disorder and Normal Students

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Abstract

Introduction: This study aimed to compare academic help-seeking behaviors, problem-solving strategies, and self-efficacy between students with Attention Deficit/Hyperactivity Disorder (ADHD) and typically developing peers.

research methodology: Using a causal-comparative design, the sample included 40 typically developing students (selected via multi-stage cluster sampling) and 40 students with ADHD (selected through purposive sampling) from grades 4–6 in Shiraz elementary schools (2019–2020 academic year). Data were collected using Ryan and Pintrich's (1997) Academic Help-Seeking Questionnaire, Cassidy and Long's (1996) Problem-Solving Strategies Questionnaire, and Sherer et al.'s (1981) General Self-Efficacy Scale.

Findings: Multivariate analysis of variance (MANOVA) revealed significant differences ($p < 0.01$) between groups in academic help-seeking, problem-solving strategies, and self-efficacy. Further analysis showed significant group differences ($p < 0.01$) in adaptive/avoidant help-seeking and all problem-solving components (helplessness, control, creativity, confidence, avoidance, and approach styles).

Conclusion: These findings highlight distinct cognitive-behavioral patterns in students with ADHD, suggesting the need for targeted educational interventions.

Key Words: Academic help-seeking, Problem-solving strategies, Self-efficacy, Attention Deficit/Hyperactivity Disorder (ADHD).

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Introduction

In any society, the health of children holds special importance. Focusing on their mental health helps them to be psychologically and physically sound and to better fulfill their social roles. In this regard, a correct understanding of the various physical and mental dimensions of this age group and efforts to provide suitable material and spiritual conditions for their physical, emotional, and intellectual growth are self-evident and need no emphasis (Khoddam, Madanlou, Ziaei, & Keshtkar, 2009). Childhood behavioral disorders are common and debilitating disorders that create many problems for teachers, families, and the children themselves, and are associated with many social issues (Eslamiyeh, 2008). Behavioral disorders have a relatively uniform prevalence across different societies (Rescorla, Achenbach, Ivanova, Dumenci, Almqvist & Bilenberg, 2007), and factors such as age, gender, family structure, and socioeconomic status are believed to influence their occurrence (Taniella, Ebing, Hikora & Jarvelin, 2013). Behavioral disorders significantly negatively impact children's academic and social performance and increase the likelihood of developing mental illnesses in adulthood (Ip-Eapen, Sawadi, Sabri & Abu-Saleh, 2007).

Attention Deficit/Hyperactivity Disorder (ADHD) is one of the most common problems among children and adolescents and a frequent reason for referral to child psychiatrists and counselors. It presents with inappropriate symptoms such as inattention, hyperactivity, and impulsivity (Croce, Cassels & Kalff, 2005). This disorder is associated with difficulties in various educational areas, including poor academic performance, grade repetition, school dropout, poor family and peer relationships, anxiety, depression, aggression, delinquency, substance abuse at young ages, and high rates of law-breaking, and it carries the risk of comorbidity with other disorders (David & Gaspar, 2005). Research findings indicate that boys are more frequently affected by ADHD than girls (Classen, Miller & Fine, 2014).

Help-seeking is a crucial self-regulated learning strategy that plays a significant role in students' learning and academic progress. Ames (1983) believes that help-seeking is a type of effort. That is, the individual actively uses available resources to increase the likelihood of future success. Help-seeking is considered a form of achievement behavior that involves searching for and using a strategy to achieve success. One of the unique characteristics of self-regulated learners in the classroom is their ability to use others as a resource for coping with ambiguity and difficulty in the learning process. To engage in help-seeking, students must be aware of their need for help (metacognition); decide to ask others for help (motivation); and employ strategies to solicit help from another person (behavior) (Pekrun et al., 2013).

On the other hand, an individual's self-concept can play a major role in determining relationships with others. As a child develops, they gain more experiences and grow and develop their personal perception of themselves as an individual (Jones & Riazi, 2011). Therefore, the study of self-concept is considered a significant and fundamental topic in psychological knowledge. Self-concept is different from self-efficacy. This means that self-efficacy is a

specific, context-dependent evaluation of competencies that shape a particular task, a judgment of abilities that manages specific behaviors in particular situations. Self-concept includes beliefs about self-worth in relation to one's perceived ability, and it is clear that beliefs are part of self-concept; however, Bandura believes that self-concept and self-efficacy represent different phenomena and should not be confused. Compared to self-efficacy judgments, self-concept judgments are generally more global and less context-dependent. Self-concept theories argue that individuals' self-concept is a stronger predictor of performance, whereas social cognitive theories argue that self-efficacy possesses such predictive power (Omid, 2016).

Numerous studies have been conducted on the topic of the present research. For example: Walting et al. (2001) compared sensory processing behaviors in 3 to 6-year-old autistic children with normal children using Dunn's Sensory Profile Questionnaire. The results showed that these children differed significantly from normal children in 8 out of 10 factors of the SP. These factors included (help-seeking, emotional excitability, low muscle tone tolerance, oral sensitivity, inattention and distractibility, poor registration, fine motor skills and perception, etc.).

Rogers, Hepburn, and Werner (2003) conducted a study titled "Parental Reports of Sensory Symptoms in Infants with Autism and Those with Other Developmental Disorders." The research results showed that both children with autism and children with Fragile X syndrome had significantly more "sensory symptoms" than the other two groups. Both groups were more impaired in tactile sensitivity and auditory filtering compared to typically developing children and children with developmental delays. Autistic children showed greater abnormalities in response to taste and smell stimuli compared to other groups.

Kern et al. (2006) investigated abnormal sensory processing patterns in autistic children. Their sample included 104 autistic individuals aged 3-56 years, who were age-matched with a control group. The results showed that autistic individuals have abnormalities in processing auditory, visual, tactile, and gustatory stimuli that are significantly different from the control group.

Chung and Su (2009) compared sensory processing patterns in children with and without developmental disabilities. Their sample included children with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and typically developing children. The research results indicated that sensory processing differs in children with and without disabilities, but it is difficult to distinguish differences in sensory processing between children with autism and those with ADHD.

Hoog Haser and Engel-Yeger (2010) investigated sensory processing ability and its relationship to leisure participation in children with high-functioning Autism Spectrum Disorders. The research results showed that children with high-functioning ASD have abnormal sensory processing abilities. They also have low participation in leisure activities. Abnormal sensory processing patterns are related to low participation, especially in social, physical, and informal activities.

Soltani (2009) conducted a study titled "Investigating and Comparing the Development of Motor Skills in Students with Attention Deficit/Hyperactivity Disorder and Normal Students." The findings showed that a child's first behavioral response is motor, which is a significant factor in the learning process. The motor skills of students with ADHD differ significantly from normal students, and rehabilitation for this disorder can help these individuals with concentration. This research has applications for families and schools.

Alizadeh, Bahmani, and Mofidi (2010) conducted a study titled "Comparing Writing Skill Development in First-Grade Students with Attention Deficit/Hyperactivity Disorder and Normal Students" and concluded that students with ADHD, especially the inattentive type, showed the weakest performance in spelling and composition.

ADHD is one of the most common neurodevelopmental disorders in childhood, characterized by symptoms such as inattention, hyperactivity, and impulsivity. This disorder not only negatively impacts children's academic performance but can also lead to problems in social and family relationships, and even their mental health in adulthood. Among the main challenges for students with ADHD are difficulties in learning strategies, problem-solving, and self-efficacy. These issues can lead to reduced academic performance and an increased sense of helplessness in these students. Meanwhile, identifying the differences between students with ADHD and typical students can help in designing targeted educational and psychological programs. Furthermore, improving academic help-seeking and problem-solving strategies in students with ADHD can enhance their academic and social performance. However, limited studies have compared these components between students with ADHD and typically developing students

Research hypothesis

This research seeks to investigate the following hypotheses:

1. There is a significant difference in academic help-seeking between students with ADHD and normal students.
2. There is a significant difference in problem-solving strategies between students with ADHD and normal students.
3. There is a significant difference in self-efficacy between students with ADHD and normal students.

Methodology

The current research is descriptive and of a causal-comparative type. The statistical population for this study consisted of all male and female students in grades four to six of elementary schools in Shiraz during the 2019-2020 academic year, totaling 2600 students. The research sample comprised 80 students (including 40 normal students and 40 students with Attention Deficit/Hyperactivity Disorder (ADHD)).

Sampling for the group of students with ADHD was conducted using a purposeful (or targeted) sampling method from among the 28 exceptional schools in Shiraz. For the group of normal students, a multi-stage cluster sampling method was employed. For this purpose, two educational districts were randomly selected from the four educational districts of Shiraz. Then, from the list of elementary schools available in the planning and program department of the Fars Province Education Organization, six elementary schools (three girls' schools and three boys' schools) were randomly selected from the aforementioned districts (three schools from each educational district). Subsequently, considering the available classes in grades four to six, the required sample size was randomly selected. It is important to note that, in the group of students with ADHD, only those who obtained high scores on the SNAP-IV (Swanson, Nolan, and Pelham, Version IV) rating scale were included in the study.

In this research, three questionnaires were used for data collection:

1. Ryan and Pintrich Academic Help-Seeking Questionnaire (1997)

This questionnaire was developed by Ryan and Pintrich (1997). The help-seeking questionnaire has two dimensions: adaptive help-seeking (questions 1 to 7) (sample item: "If I cannot solve a problem, I ask others for help") and avoidant help-seeking (questions 8 to 14) (sample item: "If homework is difficult, I do not ask anyone for help and try to solve it myself"). Each dimension consists of 7 items, scored on a five-point Likert scale from one to five (1 = strongly disagree, 5 = strongly agree). Ryan and Pintrich (1997) reported the reliability of the avoidant help-seeking scale as 0.89 using Cronbach's alpha method. The construct validity of the avoidant help-seeking dimension was assessed using varimax rotation, showing that the avoidant help-seeking factor explained 27% of the total variance. In the Persian version, Ghadampour (2003) reported the reliability of the avoidant help-seeking scale as 0.68, and performed its construct validity using varimax rotation, with the result showing that the avoidant help-seeking factor explained 29.4% of the total variance (cited in Ebrahimi, 2010).

2. Cassidy and Long Problem-Solving Strategies Questionnaire (1996)

Cassidy and Long constructed the problem-solving styles scale in 1996 in two stages. It consists of 24 questions measuring six factors, with each factor comprising four test items. These factors are:

Helplessness in Problem-Solving or Orientation (reflects the individual's helplessness in problematic situations) (questions 1-4).

Problem-Solving Inhibition or Control in Problem-Solving (reflects the external-internal control dimension in problematic situations) (questions 5-8).

Creative Problem-Solving Style (indicates planning and considering various solutions based on the problematic situation) (questions 9-12).

Confidence in Problem-Solving (reflects belief in one's ability to solve problems) (questions 13-16).

Avoidance Style (indicates a tendency to bypass problems instead of confronting them) (questions 17-20).

Approach Style (indicates a positive attitude toward problems and a willingness to confront them directly) (questions 21-24).

The questionnaire is scored as zero or one, and half a point is assigned for the "I don't know" option. The sum of these scores represents the total score for each of the six factors. Therefore, each factor, having 4 questions, will have a score ranging from a minimum of zero to a maximum of 4. The factor with the highest score indicates the method an individual uses when facing problems. In this case, the maximum problem-solving score will be 24, the minimum 0, and the average score 12.

Cassidy and Long (1996) obtained Cronbach's alpha coefficients for this questionnaire in a study for the helplessness, inhibition, creativity, confidence, avoidance, and approach styles as 0.66, 0.66, 0.57, 0.71, 0.52, and 0.65, respectively. In Mohammadi's (1998) research, the alpha coefficients were also above 0.50, except for the approach style.

3. Sherer et al. General Self-Efficacy Questionnaire (1981)

To measure students' self-efficacy beliefs, the Sherer et al. (1981) Self-Efficacy Beliefs Questionnaire was used. This scale, designed for general self-efficacy, has 17 items. Higher scores indicate stronger self-efficacy, while lower scores indicate weaker self-efficacy. This scale has 17 questions, each adjusted based on a Likert scale ranging from "strongly disagree" to "strongly agree." The scale is scored by assigning 1 to 5 points to each item.

This scale was translated and validated by Barati (1996). Bakhtiari Barati (1997) correlated the scores obtained from this scale with measures of several personality traits (Rotter's Internal-External Locus of Control Scale, Personal Control Subscale, Marlowe-Crowne Social Desirability Scale, and Rosenberg's Interpersonal Competence Scale) to assess its construct validity. The predicted correlation between the self-efficacy scale and the measures of personality traits was moderate (0.61 and significant at $p < 0.05$) and in the direction of confirming the intended construct (cited in Keramati and Shahraray, 2004). Also, the reliability coefficient of the scale was obtained as 0.76 using the Guttman split-half method and 0.79 using Cronbach's alpha coefficient (Shamaeizadeh & Abedi, 2005, p. 35).

Research Findings

Based on the analyses performed (according to Table 1), it is observed that in the group of students with Attention Deficit/Hyperactivity Disorder (ADHD), the smallest sample size belongs to the sixth grade (18%). Similarly, in the group of normal students, the smallest sample size is also for the sixth grade (23%). The largest sample size in both groups corresponds to the

Table 1: Frequency and Percentage Distribution of Participants by Academic Grade

Educational Level	Normal Students		Students with ADHD	
	Frequency	Percentage	Frequency	Percentage
Fourth Grade	18	45%	20	50%
Fifth Grade	13	32%	13	32%
Sixth Grade	9	23%	7	18%

The frequency and percentage distribution of participants based on economic status are presented in Table 2.

Table 2: Frequency and Percentage Distribution of Participants by Economic Status

Economic Status	Normal Students		Students with ADHD	
	Frequency	Percentage	Frequency	Percentage
Good	18	45%	21	52%
Average	12	30%	10	25%
Poor	10	25%	9	23%
Total	40	100%	40	100%

As Table 2 shows, the economic status of students in both groups was reported, indicating that the two groups have a largely similar economic standing.

Following this, statistical indices for the research variables between students with Attention Deficit/Hyperactivity Disorder (ADHD) and normal students are summarized in Table 3.

Table 3: Statistical Indices of Research Variables Between Students with Attention Deficit/Hyperactivity Disorder (ADHD) and Normal Students

Variable	Group	Mean	Standard Deviation
Overall Academic Help-Seeking Score	Normal Students	28.12	3.70
	Students with ADHD	31.65	4.04
Help-Seeking Acceptance Subscale	Normal Students	16.25	2.62
	Students with ADHD	14.07	2.22
	Normal Students	13.77	2.57

Help-Seeking Avoidance Subscale	Students with ADHD	15.55	2.40
Overall Problem-Solving Score	Normal Students	84.72	5.09
	Students with ADHD	79.70	6.80
Helplessness in Problem-Solving	Normal Students	14.67	2.45
	Students with ADHD	16.77	2.14
Problem-Solving Inhibition	Normal Students	13.77	1.99
	Students with ADHD	15.77	2.52
Creative Problem-Solving Style	Normal Students	14.22	1.80
	Students with ADHD	11.95	3.69
Confidence in Problem-Solving	Normal Students	13.42	1.37
	Students with ADHD	11.87	1.89
Avoidance Style	Normal Students	13.27	1.64
	Students with ADHD	14.67	2.73
Approach Style	Normal Students	13.77	1.59
	Students with ADHD	10.07	2.73
Overall Self-Efficacy Score	Normal Students	58.32	6.43
	Students with ADHD	42.20	8.63

As observed in Table 3, a significant difference is evident between the mean scores of the two groups across the research variables. This section presents the statistical analysis. The purpose of inferential statistics is to draw conclusions about the characteristics of the population from which the studied sample was drawn. Given the nature of the research hypotheses, multivariate analysis of covariance (MANCOVA) was used to compare the mean differences between the two groups.

To ensure the applicability of parametric statistical tests, the normality of score distribution (skewness and kurtosis) for both the ADHD and normal student groups is reported in Table 4. Additionally, the Kolmogorov-Smirnov

(K-S) test for the normality of score distribution for both groups is presented in Table 5, as detailed below.

Table 4: Normality Test for Data Distribution for Scores of Both Students with Attention Deficit/Hyperactivity Disorder (ADHD) and Normal Students (n=80)

Statistical Indices	Kurtosis	Skewness	Normality Assumption
Self-Efficacy	0.07	-0.39	Confirmed
Academic Help-Seeking	-0.44	-0.16	Confirmed
Problem-Solving	-0.64	1.85	Confirmed

Given Table 4, since the skewness and kurtosis values for all variables fall between -2 and 2, we conclude that the assumption of normal data distribution for the scores of both students with ADHD and normal students is confirmed. The normality of data distribution is assessed using the Kolmogorov-Smirnov (K-S) test. When the significance level of this test is greater than 0.05, the assumption of data normality is confirmed, allowing the researcher to use parametric tests. Table 5 presents the statistical indices for the Kolmogorov-Smirnov test.

Table 5: Kolmogorov-Smirnov (K-S) Test for Data Normality

Dependent Variables	Z-statistic	Sig.
Self-Efficacy	1.00	0.18
Academic Help-Seeking	0.86	0.37
Problem-Solving	0.14	0.78

The results regarding the normality of data distribution for the variables examined in the pre-test are reported in Table 5. As the significance level of the Kolmogorov-Smirnov test for all variables is greater than 0.05, the null hypothesis (normality of data distribution) is confirmed.

Research Hypothesis 1: There is a significant difference in academic help-seeking between students with ADHD and normal students.

Table 6: Results of Multivariate Analysis of Variance to Investigate Patterns of Difference in Academic Help-Seeking Subscales Between Students with ADHD and Normal Students (N=80)

Effect	Value	F-statistic	Hypothesis df	Error df	Significance Level	Eta Squared (Effect Size)
Constant						
Pillai's Trace	0.98	2349.95	2	77	0.000	0.98
Wilks' Lambda	0.01	2349.95	2	77	0.000	0.98
Group						
Pillai's Trace	0.17	8.15	2	77	0.001	0.17
Wilks' Lambda	0.82	8.15	2	77	0.001	0.17

Based on the values in Table 6, the effect of all listed tests was significant at a level less than 0.01 ($p < 0.01$). In other words, all interactions and effects

between the academic help-seeking subscales were significant in the model for both students with ADHD and normal students.

Table 7: Results of Multivariate Analysis of Variance (MANCOVA) to Investigate Patterns of Difference in Academic Help-Seeking Subscales Between Students with ADHD and Normal Students (N=80)

Variables	Sum of Squares	Degrees of Freedom	Mean Square	F-statistic	Significance	Effect Size
Group						
Help-Seeking Acceptance	61.25	1	61.25	10.32	0.002	0.11
Help-Seeking Avoidance	63.01	1	63.01	10.13	0.002	0.11
Error						
Help-Seeking Acceptance	462.70	78	5.93			
Help-Seeking Avoidance	484.87	78	6.21			
Corrected Total						
Help-Seeking Acceptance	523.95	79				
Help-Seeking Avoidance	547.88	79				

The analysis of each dependent variable (academic help-seeking subscales) using the multivariate test showed a significant difference in the score of help-seeking acceptance ($F(1,78)=10.32$, $p=0.002$, $\eta^2=0.11$) and help-seeking avoidance ($F(1,78)=10.13$, $p=0.002$, $\eta^2=0.11$) between the two groups. Research Hypothesis 2: There is a significant difference in problem-solving strategies between students with ADHD and normal students.

Table 8: Results of Multivariate Analysis of Variance to Investigate Patterns of Difference in Problem-Solving Strategies Subscales Between Students with ADHD and Normal Students (N=80)

Effect	Value	F-statistic	Hypothesis df	Error df	Significance Level	Eta Squared (Effect Size)
Constant						
Pillai's Trace	0.98	2687.59	6	73	0.000	0.99
Wilks' Lambda	0.005	2687.59	6	73	0.000	0.99
Group						
Pillai's Trace	0.53	14.16	6	73	0.001	0.53
Wilks' Lambda	0.46	14.16	6	73	0.001	0.53

Based on the values in Table 8, the effect of all listed tests was significant at a level less than 0.01 ($p < 0.01$). In other words, all interactions and effects between the problem-solving strategies subscales were significant in the model for both students with ADHD and normal students.

Table 9: Results of Multivariate Analysis of Variance (MANCOVA) to Investigate Patterns of Difference in Problem-Solving Strategies Subscales Between Students with ADHD and Normal Students (N=80)

Variables	Sum of Squares	Degrees of Freedom	Mean Square	F-statistic	Significance	Effect Size
Group						
Helplessness in Problem-Solving	88.20	1	88.20	16.62	0.001	0.17
Problem-Solving Inhibition	80.00	1	80.00	15.44	0.001	0.16
Creative Problem-Solving Style	103.51	1	103.51	12.21	0.001	0.13
Confidence in Problem-Solving	48.05	1	48.05	17.50	0.001	0.18
Avoidance Style	39.20	1	39.20	7.66	0.007	0.09
Approach Style	273.80	1	273.80	54.79	0.001	0.41
Error						
Helplessness in Problem-Solving	413.75	78	5.30			
Problem-Solving Inhibition	403.95	78	5.17			
Creative Problem-Solving Style	660.87	78	8.47			
Confidence in Problem-Solving	214.15	78	2.74			
Avoidance Style	398.75	78	5.11			
Approach Style	389.75	78	4.99			
Corrected Total						
Helplessness in Problem-Solving	501.95	79				
Problem-Solving Inhibition	483.95	79				
Creative Problem-Solving Style	764.38	79				
Confidence in Problem-Solving	262.20	79				
Avoidance Style	437.95	79				
Approach Style	663.55	79				

The analysis of each dependent variable (problem-solving strategies subscales) using the multivariate test showed a significant difference in the scores of:

- Helplessness in problem-solving ($F(1,78)=16.62$, $p=0.001$, $\eta^2=0.17$)
- Problem-solving inhibition ($F(1,78)=15.44$, $p=0.001$, $\eta^2=0.16$)
- Creative problem-solving style ($F(1,78)=12.21$, $p=0.001$, $\eta^2=0.13$)
- Confidence in problem-solving ($F(1,78)=17.50$, $p=0.001$, $\eta^2=0.18$)
- Avoidance style ($F(1,78)=7.66$, $p=0.007$, $\eta^2=0.09$)
- Approach style ($F(1,78)=54.79$, $p=0.001$, $\eta^2=0.41$) between the two groups.

Research Hypothesis 3: There is a significant difference in self-efficacy between students with ADHD and normal students.

Table 10: Independent T-Test Results for Self-Efficacy in Students with Attention Deficit/Hyperactivity Disorder (ADHD) and Normal Students (N=80)

Variable s / Group	N	Mean Difference	Standard Error Mean	Degrees of Freedom	T statistic	Significance Level
Self-Efficacy/ Students with ADHD	40	-2.54	0.94	98	-2.68	0.009
Normal Students	40					

Based on the results in Table 10, since the calculated t-statistic ($t=-2.54$) with 98 degrees of freedom is greater than the critical value (table t-value) of 1.96, the null hypothesis is rejected at the 0.01 level. This means the research hypothesis is confirmed; therefore, there is a significant difference in self-efficacy between students with Attention Deficit/Hyperactivity Disorder (ADHD) and normal students.

Discussion and conclusion

The current research aimed to compare academic help-seeking, problem-solving strategies, and self-efficacy in students with Attention Deficit/Hyperactivity Disorder (ADHD) and normal students. To test the hypotheses related to this objective, 40 students with ADHD and 40 normal students were selected using a multi-stage cluster sampling method from male and female students in grades four to six of elementary schools in Shiraz. They then completed Ryan and Pintrich's (1997) Academic Help-Seeking Questionnaire, Cassidy and Long's (1996) Problem-Solving Strategies Questionnaire, and Sherer et al.'s (1981) General Self-Efficacy Scale.

After data collection and extraction, participants' scores were analyzed using univariate and multivariate analysis of variance (ANOVA and MANCOVA) and independent t-tests. The results showed a significant difference ($p<0.01$)

between the two groups (students with ADHD and normal students) in the variables of academic help-seeking, problem-solving, and self-efficacy.

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