

Learning Disabilities and Behavioral Problems among Primary School Students in Thailand: A Cross-Sectional Study

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ABSTRACT:

Learning disabilities and behavioral problems constitute significant barriers to children's educational attainment and well-being. This study sought to identify at-risk indicators for learning difficulties and behavioral problems, their associated factors, and to examine the relationship between at-risk indicators for learning difficulties and behavioral problems among Thai primary school students. A three-stage random sampling method recruited 500 participants (grades 3-6) from Thai primary schools. Data collection employed the Behavioral Observation Screening Scale (BOSS) and the Strengths and Difficulties Questionnaire (SDQ). Statistical analyses included descriptive statistics, chi-square tests, and binary logistic regression. Results indicated that 20.6% of students showed at-risk indicators for learning difficulties, while 15.3% exhibited behavioral problems. A strong positive correlation was found between at-risk indicators for learning difficulties and behavioral problems, particularly hyperactivity/inattention ($r = .467$) and total behavior problems ($r = .415$). Binary logistic regression identified low academic performance and both parental and maternal education levels as significant predictors of at-risk indicators for learning difficulties. Furthermore, upper primary grade level, male gender, low paternal education, and at-risk status for learning difficulties emerged as predictors of behavioral problems. These findings underscore the relationship between at-risk indicators for learning difficulties and behavioral problems, highlighting the necessity for comprehensive, family-centered interventions to address both academic and behavioral problems.

Keywords: Academic performance, at-risk for learning difficulties, behavioral problems, parental education, teacher screening

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Introduction

Learning disabilities (LD) represent one of the most prevalent developmental challenges affecting school-age children worldwide. From

an educational standpoint, a learning disability is not indicative of low intelligence but rather reflects a distinct discrepancy between cognitive potential and actual academic performance

(American Psychiatric Association, 2022). Specifically, many students with LD demonstrate significant difficulties in basic academic areas such as reading, writing, or mathematics despite having average or above-average intellectual ability (Abubakr, 2020; Kavale & Forness, 2020). Consequently, children with LD face challenges not only in academic achievement but also in broader domains of development, including attention, memory, language, metacognition, and motor coordination, which represent a significant risk for learning disorders if they do not receive suitable learning or therapy. Furthermore, such children may experience social and emotional difficulties that can impact classroom behavior and peer relationships, thereby influencing overall educational engagement (Fletcher et al., 2019; Valiente et al., 2020). Globally, the prevalence of learning disabilities among primary school students ranges from 5% to 15%, depending on diagnostic criteria and educational assessment practices (World Health Organization, 2021).

Learning disability is a major educational and public health concern in Thailand. National and regional surveys indicate that the prevalence of learning disabilities among Thai school-age children is broadly consistent with international estimates, with school-based screening studies reporting rates in the range of approximately 6–15% depending on the diagnostic criteria, screening tools, and age group studied (Chunsuwan et al., 2022; Piyasil and Wangtan, 2015). Within this broader prevalence, reading disorders appear to be the most frequently recognized subtype among specific learning disorders in Thailand. A population-based study of 901 Grade 1 students in Pathum Thani Province found that 14.5% were at risk of reading difficulties based on standardized Thai reading assessments, highlighting that nearly one in seven children may begin formal schooling while facing significant challenges in learning to read (Chunsuwan et al., 2022). Hospital-based data similarly shows that most children referred for learning problems present during the primary school years often exhibit combined impairments in reading, writing, and calculation, underscoring

the educational impact of these difficulties (Piyasil and Wangtan, 2015).

Identification of factors associated with LD is essential for early detection, intervention, and support planning (Johnson, 2017). Research has consistently shown that demographic, socioeconomic, and behavioral variables play a significant role in the incidence and manifestation of learning disabilities among children. Demographic factors such as age, gender, and grade level have been found to influence the prevalence and types of learning disabilities, with boys generally being at higher risk than girls (Thanh Nam et al., 2024; Okaba, et al., 2024). Socioeconomic status (SES) is another critical determinant, since children from lower SES backgrounds are more likely to experience learning disabilities due to limited access to educational resources, healthcare, and supportive environments (Shabeeda, 2023). Additionally, behavior problems often co-occur with learning disabilities (Okaba et al., 2024; Bozath et al., 2024; Polak & Grossman, 2024).

Behavioral problems in primary school settings encompass a broad spectrum of difficulties, including externalizing behaviors such as aggression, hyperactivity, and defiance as well as internalizing problems like anxiety, depression, and social withdrawal. These behavioral challenges not only disrupt the learning environment, but also significantly impact children's academic performance, peer relationships, and educational outcomes (Li et al., 2023; Joseph et al., 2021).

From the literature, the prevalence of behavior problems among primary school students varies across contexts and assessment methods but generally indicates that a significant proportion of children are affected. Studies have reported prevalence rates ranging from approximately 3% to 22.7%, with externalizing behaviors such as aggression and rule-breaking being most common (Abdolahzadeh et al., 2018; Teekavanich et al., 2017; Ravindranadan and Joseph, 2022). For instance, Abdolahzadeh et al. (2018) found that about 16% of students in Iran were diagnosed with behavioral disorders, with

them notably more prevalent in males. Studies have shown that behavioral problems in primary school children are influenced by a complex interplay of individual, family, school, and societal factors (Joseph et al., 2021; Shabeeda, 2023). Parental and environmental influences, including harsh or inconsistent discipline, parental depression, and lack of social support, also significantly contribute to the development and persistence of behavior problems (Ozdogru, 2023). Research consistently demonstrates that children with learning disabilities face elevated risks for developing behavioral and emotional problems compared to their typically developing peers (Aro et al., 2022).

The relationship between learning difficulties and behavioral problems appears to be particularly pronounced in early elementary years when children are developing fundamental academic skills and establishing patterns of school behavior. Castro et al. (2020) found significant associations between learning and behavioral difficulties among second-grade children, suggesting that early identification and intervention are crucial. Furthermore, research in Thailand has specifically documented the prevalence of behavioral problems among Grade One students with reading difficulties, indicating that this relationship manifests across different cultural and educational contexts (Chunsuwan et al., 2022). The COVID-19 pandemic further complicated the landscape of learning difficulties and behavioral problems, with studies indicating increased psychosocial problems among primary school children during and after the pandemic period (Pudpong et al., 2023; Wongsettee & Lorterapong, 2024). Learning difficulties and behavioral problems often appear together, creating particularly complex educational challenges (Joseph et al., 2021; Pandey et al., 2023). Learning difficulties and behavioral problems are important problems among primary school students. Teachers, educators, and school administrators must therefore utilize screening to identify both learning difficulties and behavioral problems. In Thailand, classroom teachers often serve as the first line of screening for students at risk of learning disabilities and behavior

problems, making their understanding and identification practices crucial to the early intervention process before formal clinical diagnoses of learning disability can be made, as defined by international standards such as the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Chunsuwan et al., 2022; Tiengsomboon & Luvira, 2024). When teachers know or can identify that a student has learning or behavioral problems, they can utilize suitable techniques or teaching methods to support the student before a clinical diagnosis is made.

Despite growing recognition of the importance of this topic, there is limited research examining the simultaneous influence of multiple factors on both learning difficulties and behavioral problems among Thai primary school students. Most existing studies focused on either learning difficulties or behavioral problems in isolation or examined their relationship without thoroughly investigating the contributing factors for each condition. An integrative approach to understand the prevalence, risk factors, and school-level screening practices related to students at-risk for learning disabilities and behavioral problems within the Thai context is essential for improving early identification and intervention strategies.

Therefore, the objectives of this study were to: (1) assess at-risk indicators for learning difficulties and behavioral problems among Thai primary school students using teacher-based screening instruments; (2) examine the association between these at-risk indicators and behavioral problems; and (3) identify sociodemographic and academic factors related to each condition.

Method

Study design and procedures

This study utilized a cross-sectional survey design examining students attending two primary schools in Thailand during the first semester of the 2024 academic year. The sample included students in grades 3-6 (ages 8-12 years). The sample size was determined using the Cochran (1977) formula: $n = [z^2/4e^2]$, where e represents the expected margin of error (0.05) for a 95%

confidence interval and $z = 1.96$. This calculation yielded a target sample size of 500 students.

A three-stage random sampling procedure was employed: (1) one district was randomly selected in Nakhon Pathom Province and one district was randomly selected in Bangkok; (2) one primary school was randomly selected from each district; and (3) two classrooms per grade level were randomly selected from each school. All students in selected classrooms were invited to participate (approximately 40 students per classroom). Therefore, the maximum recruitment pool was $2 \text{ schools} \times 4 \text{ grades} \times 2 \text{ classrooms} \times 40 \text{ students} = 640 \text{ students}$. The final sample included 500 students who met the following inclusion criteria: Absence of previously diagnosed major mental health conditions or developmental disorders (based on school records), parental and student informed consent, and currently enrolled in grades 3-6. Each classroom teacher completed screening assessments (BOSS and SDQ) for all students in their classroom(s). Data was collected from August to October 2024.

Data was collected using three questionnaires rated by the classroom teachers as follows:

1) Sociodemographic and Academic Factors, such as demographic information (gender, age), family factors (parents' marital status, living arrangements, father's education, mother's education, family monthly income), and academic factors (grade level, grade point average [GPA]).

2) At-Risk Indicators of Learning Difficulties was measured using the Behavioral Observation Screening Scale (BOSS-Thai version; Phoasavasdi et al., 2015). This 40-item instrument contains four subscales (10 items each): Subnormal intelligence, learning disability, ADHD, and autism spectrum disorder. For the present study, only the 10-item learning disability subscale was utilized to assess at-risk indicators for learning difficulties. Cronbach's alpha reliability coefficient was .90.

3) Behavioral Problems were measured using the Strengths and Difficulties

Questionnaire (SDQ-Thai version; Wongpiromsarn et al., 2011) to assess behavioral and emotional functioning. The SDQ contains 25 items across five subscales: Emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items), and prosocial behavior (5 items). The present study utilized the four problem-focused subscales (20 items total) but excluded the subscale for prosocial behavior. Cronbach's alpha reliability coefficient was .70.

Ethical Considerations

This study was approved by the MU-CIRB (Mahidol University Central Institutional Review Board) prior to the questionnaire being administered. Teachers of the selected classrooms were informed of the study objectives, procedures, and voluntary nature of participation. Parents and students received informed consent forms explaining the study purpose, potential benefits and risks (minimal risk anticipated), and assurance of confidentiality. Written informed consent was obtained from parents or guardians, participating students, and their teachers. The participating students and their teachers were informed that they could decline to participate or withdraw at any time without penalty. This step took approximately 30 minutes per class. Each participating teacher took approximately 30 minutes per student to complete the questionnaire.

Data Analysis

Descriptive statistics including frequency, percentage, mean, standard deviation, and range were computed to describe sample characteristics and assess prevalence of at-risk indicators for learning difficulties and behavioral problems. Chi-square tests examined associations between categorical variables. Binary logistic regression with the enter-step elimination method identified significant predictors of: (1) at-risk status for learning difficulties; and (2) behavioral problems. Independent variables included gender, age, parents' marital status, living arrangements, father's education, mother's education, family income, grade level, and GPA. The significance

level was set at $p < .05$, with 95% confidence intervals calculated for odds ratios.

Results

Sociodemographic characteristics of the sample

The sociodemographic characteristics of the 500 participants are presented in Table 1. Approximately half of the participants were girls (50.2%) and half were boys (49.8%), with ages

ranging from 8 to 12 years ($M = 10.30$, $SD = 1.22$). More than one half of their parents (60.4%) were married. Regarding parental education, 53.4% of fathers and 50.4% of mothers had attained bachelor's degrees or a higher qualification. Most families (80.2%) had monthly incomes below 30,000 Thai baht. The majority of students (58.6%) living with their family and 81.0% maintained GPAs above 3.00. Upper primary grades (5-6) comprised 55.2% of the sample.

Table 1. The sociodemographic characteristics of the study participants (n = 500).

Variables		<i>n</i>	%
Gender			
	Girl	251	50.2
	Boy	249	49.8
Age (years) <i>M = 10.30, SD = 1.22</i>			
	8	31	6.2
	9	128	25.6
	10	102	20.4
	11	139	27.8
	12	100	20.0
Parents' marital status			
	Living together	198	39.6
	No	302	60.4
Father's education			
	Bachelor's degree and above	267	53.4
	Less than a bachelor's degree	233	46.6
Mother's education			
	Bachelor's degree and above	252	50.4
	Less than a bachelor's degree	248	49.6
Family monthly income			
	>30,000 baths	99	19.8
	Less than 30,000	401	80.2
Living arrangements			
	Living with parents	293	58.6

	No	207	41.4
Grade level			
	Grade 3-4 (middle primary)	224	44.8
	Grade 5-6 (upper primary)	276	55.2
GPA	$M = 3.44, SD = 0.46$		
	≤ 3.00	95	19.0
	3.01 - 4.00	405	81.0

Prevalence of At-Risk Indicators and Behavioral Problems

Descriptive statistics for screening measures are presented in Table 2. The BOSS learning difficulty subscale scores ranged from 0 to 10 ($M = 1.63, SD = 2.73$). Total behavioral problems scores ranged from 0 to 27 ($M = 6.91, SD =$

5.25). The behavioral subscale scores were as follows: Emotional symptoms ($M = 1.43, SD = 2.09$, range 0-10), conduct problems ($M = 1.15, SD = 1.38$, range 0-8), hyperactivity/inattention ($M = 2.20, SD = 1.98$, range 0-10), and peer relationship problems ($M = 2.13, SD = 1.51$, range 0-7).

Table 2. Descriptive statistics of the variables (n = 500).

Variable	Mean	SD	Range
Learning disability	1.63	2.73	0 -10
Behavior problems	6.91	5.25	0 -27
Emotional symptoms	1.43	2.09	0 -10
Conduct problems	1.15	1.38	0 - 8
Hyperactivity/inattention	2.20	1.98	0 -10
Peer relationship problems	2.13	1.51	0 -7

When applying standard screening cutoffs, 20.6% of the sample ($n = 103$) demonstrated at-risk indicators for learning difficulties, while 15.3% of the sample ($n = 76$) exhibited elevated behavioral problems.

Association Between At-Risk Status for Learning Difficulties and Behavioral Problem Subscales

Table 3 presents the correlation coefficients between at-risk indicators for learning difficulties and various behavioral problem domains. The results indicate statistically significant positive correlations at the 0.01 level between at-risk

indicators for learning difficulties and all behavioral problem subscales: Emotional symptoms ($r = .280$), conduct problems ($r = .280$), hyperactivity or inattention ($r = .467$), peer relationship problems ($r = .188$), and total behavior problems ($r = .415$). Notably, the strongest correlation was observed between at-risk indicators for learning difficulties and hyperactivity or inattention ($r = .467$), followed by total behavior problems ($r = .415$). All correlations were positive, suggesting that higher levels of at-risk indicators for learning difficulties are associated with increased behavioral problems across all domains.

Table3. Correlation between at-risk indicators for learning difficulties and behavioral problems.

Variables	1	2	3	4	5	6
Emotional symptoms	1	.440**	.325**	.435**	.763**	.280**
Conduct problems		1	.449**	.453**	.737**	.280**
Hyperactivity or inattention			1	.467**	.758**	.467**
Peer relationship problems				1	.754**	.188**
Total behavior problems					1	.415**
At-risk for learning difficulties						1

** Significant at the 0.01 level.

Factors Related to At-Risk Status for Learning Difficulties

Binary logistic regression analysis identified three significant predictors of at-risk status for learning difficulties (Table 4). The strongest predictor was low academic performance, with students attaining GPAs of 3.00 or lower approximately 7 times more likely to be at-risk for learning difficulties compared to higher-performing

students (adj. OR = 6.99, $p < .001$, 95% CI = 3.748 - 13.070). Students whose mothers had attained less than a bachelor's degree showed 3.9 times greater likelihood of at-risk status (adj. OR = 3.86, $p < .05$, 95% CI = 1.543 - 9.662). In addition, students whose fathers had attained less than a bachelor's degree demonstrated 2.55 times greater likelihood of at-risk status (adj. OR = 2.55, $p < .05$, 95% CI = 1.032 - 6.296).

Table 4. Logistic regression analysis for predicting those at risk of at-risk status for learning difficulties (n = 500).

Variable	β	X^2	P	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Low academic performance	1.946	37.283	.000	6.999	3.748	13.070
Low maternal education	1.351	8.337	.004	3.862	1.543	9.662
Low paternal education	.936	4.113	.043	2.549	1.032	6.296
Constant	-2.866	1.442	.230	.057		

Factors Related to Behavioral Problems

Binary logistic regression identified four significant predictors of behavioral problems (Table 5). Upper primary grade level showed the strongest association, with students in grades 5-6 approximately 6.87 times more likely to exhibit behavioral problems compared to students in grades 3-4 (adj. OR = 6.87, $p < .05$, 95% CI = 1.532 - 30.833). Male students were approximately 4.63 times more likely to show

behavioral problems than female students (adj. OR = 4.63, $p < .05$, 95% CI = 1.767 - 12.124). Students whose fathers had lower educational attainment were 4.59 times more likely to exhibit behavioral problems (adj. OR = 4.59, $p < .05$, 95% CI = 1.511 - 13.915). Finally, students identified as at-risk for learning difficulties were 3.56 times more likely to exhibit behavioral problems (adj. OR = 3.56, $p < .05$, 95% CI = 1.287 - 9.870).

Table 5. Logistic regression analysis for the likelihood of having behavior problems among primary school students (n = 500).

Variable	β	X^2	P	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Upper primary level	1.928	6.335	.012	6.873	1.532	30.833
Male	1.532	9.728	.002	4.629	1.767	12.124
Low paternal education	1.523	7.226	.007	4.585	1.511	13.915
At-risk of learning disability	1.271	5.979	.014	3.564	1.287	9.870
Constant	-5.456	2.994	.084	.004		

Discussion

The present study identified at-risk indicators for learning difficulties and behavioral problems among Thai primary school students, confirming the significant co-occurrence of these conditions in the Thai educational context. The prevalence of at-risk indicators for learning difficulties (20.6%) and behavioral problems (15.3%) align with previous Thai and international studies which report similar rates of academic and behavioral challenges in primary school populations. The strong positive correlation between at-risk indicators for learning difficulties and behavioral problems, particularly hyperactivity/inattention ($r = .467$) and total behavior problems ($r = .415$), supports the existing literature demonstrating that children with learning difficulties are more likely to experience behavioral and emotional issues (Aro et al., 2022; Castro et al., 2020; Chunsuwan et al., 2022).

The findings further reveal that low academic performance, lower maternal and paternal education attainment, and male gender were significant predictors of at-risk status for learning difficulties and behavioral problems.

Low academic performance is a robust predictor of both at-risk indicators for learning difficulties and behavioral problems among primary school students. Research consistently demonstrates that students with lower academic achievement are more likely to experience learning difficulties and exhibit behavioral issues such as inattention, hyperactivity, and conduct problems (Gabriel et al., 2023). This association may stem from a cycle of academic frustration, reduced self-esteem, and diminished engagement,

which in turn increase the risk for both learning and behavioral challenges (Gabriel et al., 2023; Valiente et al., 2020). Targeted academic interventions and supportive classroom environments are therefore essential to mitigate these risks.

Lower parental education attainment is significantly associated with increased risk for learning and behavioral difficulties in children. Parents with lower educational attainment may face challenges in providing academic support, monitoring, and guidance which are critical for children's academic and behavioral development (Shabeeda, 2023; Johnson, 2017). Moreover, parental education is closely linked to socioeconomic status, which further influences access to resources, healthcare, and educational opportunities (Shabeeda, 2023). Interventions that empower parents through education and support programs can play a vital role in improving children's outcomes

Male gender is a notable predictor of behavioral problems in primary school settings. In particular, boys are more likely than girls to display externalizing behaviors such as aggression, hyperactivity, and defiance (Iqbal, 2024). This gender difference may be attributed to biological, developmental, and social factors, including differences in self-regulation and socialization patterns (Iqbal, 2024). Early identification and gender-sensitive behavioral interventions are crucial for addressing these disparities and supporting boys' academic and social success.

Upper primary grade level (Grades 5–6) emerges as a predictor of behavioral problems, likely due to increased academic and social

demands placed on older children. As students progress to higher grades, they face greater expectations, more complex curricula, and heightened social pressures which can contribute to behavioral difficulties (Krull et al., 2022). These challenges may be exacerbated by transitions in school structure and increased competition, highlighting the need for age-appropriate behavioral support and guidance during this critical period (Krull et al., 2022).

Implications for Educational Practice

The findings highlight the necessity for integrated, family-centered interventions that simultaneously address academic and behavioral domains. Early identification and intervention are crucial, since at-risk indicators for learning difficulties and behavioral problems often co-occur and may escalate without timely support. Teachers should be equipped with screening tools and training to recognize and respond to both learning and behavioral challenges, as they are often the first line of detection in Thai schools. Moreover, educational policies should prioritize the development of individualized education plans (IEPs) and tailored teaching strategies for students with learning difficulties and behavioral problems, ensuring that interventions are evidence-based and culturally appropriate.

Limitations and Future Directions

This study has several limitations. First, the use of teacher-based screening instruments (BOSS and SDQ) may introduce bias due to subjectivity and potential halo effects, and the findings reflect

at-risk indicators rather than clinical diagnoses. Second, cross-sectional design limits causal inferences regarding the relationship between learning difficulties and behavioral problems. Third, the sample was limited to two districts in Thailand, which may affect generalizability to other regions. Future research should employ longitudinal designs to explore the developmental trajectories of at-risk indicators and behavioral problems, and include multiple informants to enhance validity, such as parents, students, and clinical professionals. Additionally, future studies should investigate the effectiveness of targeted interventions in reducing the co-occurrence of learning and behavioral challenges within the Thai educational context.

Conclusion

This study underscores the high prevalence and significant association between at-risk indicators for learning difficulties and behavioral problems among Thai primary school students. The findings highlight the critical role of academic performance, parental education, and gender as key predictors of these challenges, emphasizing the need for comprehensive, family-centered interventions that address both academic and behavioral domains simultaneously. Early identification and tailored support are essential to mitigate the long-term impact of these conditions on students' educational attainment and well-being. Future research should focus on longitudinal designs and multi-informant assessments to further clarify the causal relationships and optimize intervention strategies within the Thai educational context.

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